



NASA SP-7006 (02)

BIBLIOGRAPHIES ON AEROSPACE SCIENCE

A CONTINUING BIBLIOGRAPHY
WITH INDEXES

N66 28039

(ACCESSION NUMBER)

100

(PAGES)

(NASA CR OR TMX OR AD NUMBER)

(THRU)

1

(CODE)

34

(CATEGORY)

GPO PRICE \$

CFSTI PRICE(S) \$ 1.00

Hard copy (HC)

Microfiche (MF) 175

JUNE 1966

ff 653 July 65

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

This bibliography was prepared by the NASA Scientific and Technical Information Facility operated for the National Aeronautics and Space Administration by Documentation Incorporated.

BIBLIOGRAPHIES ON AEROSPACE SCIENCE

A CONTINUING BIBLIOGRAPHY WITH INDEXES

A selection of annotated references to unclassified bibliographies introduced into the NASA information system during the period February, 1965–April, 1966.



Scientific and Technical Information Division

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON, D. C.

JUNE 1966

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INTRODUCTION

With the publication of this second supplement, NASA SP-7006 (02), to the original issue of the Continuing Bibliography on "Bibliographies on Aerospace Science" (SP-7006), the National Aeronautics and Space Administration continues its program of periodic distribution of selected references to subjects of interest to the aerospace community. The references are assembled in this form to provide a convenient source of information for use by scientists and engineers who need this type of specialized compilation. Continuing Bibliographies are updated periodically by supplements which can be appended to the original issue.

All references in SP-7006(02) are bibliographies that have been announced in *Scientific and Technical Aerospace Reports (STAR)*, *International Aerospace Abstracts (IAA)*, and the NASA Continuing Bibliography *Aerospace Medicine and Biology* (NASA SP-7011 and its supplements). They were introduced into the NASA information system during the period February, 1965–April, 1966. Produced by a variety of private institutions and governmental organizations, each one provides a listing of references to some aspect of aerospace science.

Each entry in the bibliography consists of a citation and, when available, an abstract. The listing of entries is arranged in two major groups. Report literature references are contained in the first group and are subdivided according to their date of announcement in *STAR*. The second group includes journal and book references subdivided according to date of announcement in *IAA*, or in *Aerospace Medicine and Biology*.

A subject index and a personal author index are also included.

AVAILABILITY OF DOCUMENTS

STAR Entries (N65, N66)

NASA documents listed are available without charge to:

1. NASA Offices, Centers, contractors, subcontractors, grantees, and consultants.
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5. Foreign government or academic (university) organizations that have established reciprocal arrangements for the exchange of publications with NASA, that have current agreements for scientific and technical cooperative activities with NASA, or that have agreements with NASA to maintain collections of NASA documents for public use.

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Washington, D.C. 20402

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Scientific and Technical Information Division
National Aeronautics and Space Administration
Code USS-AD
Washington, D.C. 20546

Collections of NASA documents are currently on file in the organizations listed on the inside of the back cover.

(continued)

IAA Series (A65, A66)

All articles listed are available from Technical Information Service, American Institute of Aeronautics and Astronautics, Inc. Individual and Corporate AIAA Members in the United States and Canada may borrow publications without charge. Interlibrary loan privileges are extended to the libraries of government agencies and of academic non-profit institutions in the United States and Canada. Loan requests may be made by mail, telephone, telegram, or in person. Additional information about lending, photocopying, and reference service will be furnished on request. Address all inquiries to:

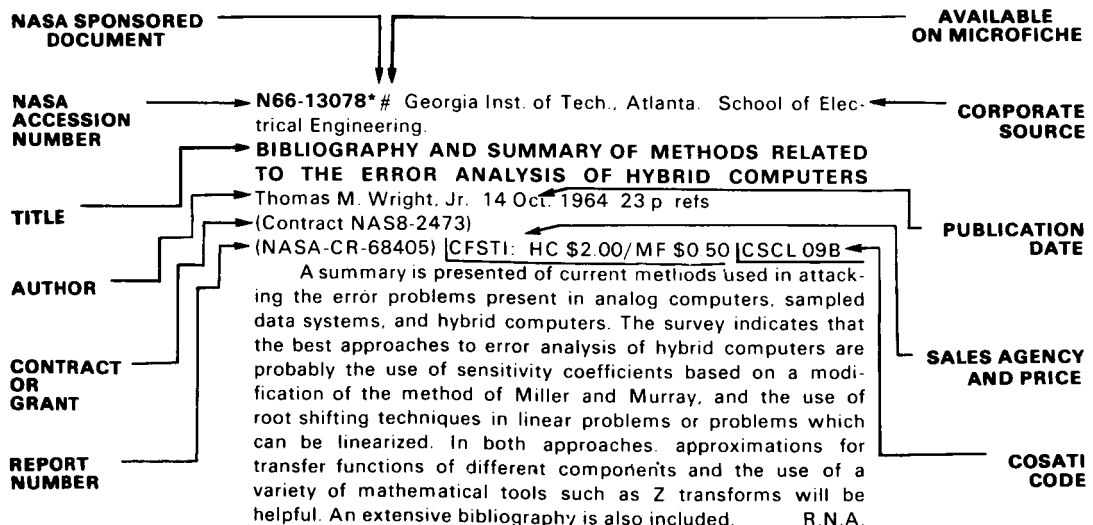
Technical Information Service
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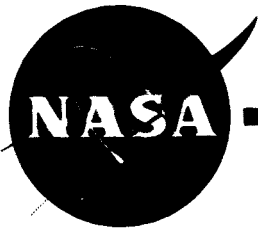
For further details please consult the Introductions to *STAR* and *IAA*, respectively.

TABLE OF CONTENTS

	Page
1965 STAR Entries (N65 Series)	1
1966 STAR Entries (N66 Series)	26
1965 IAA Entries (A65 Series)	45
1966 IAA Entries (A66 Series)	47
Subject Index	I-1
Personal Author Index	I-33

TYPICAL CITATION AND ABSTRACT





BIBLIOGRAPHIES ON AEROSPACE SCIENCE

a continuing bibliography

JUNE 1966

1965 STAR ENTRIES

N65-15537# Rocketdyne, Canoga Park, Calif.

SOURCES OF INFORMATION IN HUMAN FACTORS ENGINEERING, INCLUDING ASSOCIATED AREAS IN SYSTEM SAFETY, MAINTAINABILITY, PERSONNEL SUBSYSTEM, LIFE SCIENCES, QUALITY ASSURANCE, AND RELIABILITY ENGINEERING

George A. Peters and Frank S. Hall 1 Jan. 1965 168 p refs (RH-3398-H)

The 380 reference sources listed include bibliographies, directories, abstract services, journals and textbooks of technical information in the field of human factors engineering. There are 371 regulatory and guidance documents referred to, including various regulations, specifications, standards, manuals, instructions, and program requirements that attempt to define the character of the contractor's human factors functions. Ninety descriptive publications are a sampling of government agency reports that attempt to describe how various functions might be accomplished, review the state-of-the-art in a given area, present new methods, or list basic data which might be useful in human factors analyses. Sixty-five illustrative reports are a cross section of contractually required or data submittal reports that are representative of what was actually accomplished, how it was done, and the type of organization or approach that was utilized. R.L.K.

N65-15714# Library of Congress, Washington, D.C. Aerospace Information Div.

PHENOMENA IN THE UPPER ATMOSPHERE. COMPILATION OF ABSTRACTS Surveys of Soviet-bloc Scientific and Technical Literature

12 May 1964 20 p refs

(AID-P-64-34) OTS: HC \$1.00/MF \$0.50

Abstracts of reports concerning solar radiation and the ionosphere include those on the magnetic field in sunspot regions, ionization of the night atmosphere, chemical composition of the solar atmosphere, and nuclear processes in chromospheric flares. One report on Van Allen belts and cosmic rays is included that deals with corpuscular streams causing the diurnal cosmic ray effect. In the field of atmospheric electricity, reports on the structure of the atmospheric electric field, electrical processes during cloud development and precipitation, fog electricity, and

electricity during thunderstorms are reviewed. An abstract of a report on argon ionization in the upper atmosphere is also included. D.S.G.

N65-15819*# High Altitude Observatory, Boulder, Colo.

A BIBLIOGRAPHY ON THE EFFECTS OF SHORT-WAVE AND PARTICLE RADIATION ON GLASSES Astrogeophysical Memorandum No. 164

Lorne Avery 30 Jul. 1964 9 p refs

(Grant NsG-404)

(NASA-CR-60407) OTS: HC \$1.00/MF \$0.50

An annotated bibliography is presented of literature available in the High Altitude Observatory. It covers material pertinent to studies on the extent to which the presence of ultraviolet radiation, X-rays, and cosmic rays induces fluorescence, thermoluminescence, scintillation, and solarization of the optical elements of an orbital coronagraph. R.L.K.

N65-15838# Hughes Aircraft Co., Culver City, Calif.

LIQUID ROCKET PROPELLANTS IN ZERO GRAVITY Selected Bibliography, Jan. 1962-Sep. 1964

Janice L. Hanks, comp. Oct. 1964 6 p refs

(LS-BIB-64-2)

N65-15839# Brookhaven National Lab., Upton, N.Y.

HIGH-TEMPERATURE LIQUID-METAL TECHNOLOGY REVIEW, VOLUME 2, NUMBER 5, OCTOBER 1964 Bi-monthly Technical Progress Review

O. E. Dwyer, ed. Dec. 1964 45 p

(BNL-896(PR-11)) OTS: \$3.00

CONTENTS:

1. ALKALI METALS EVALUATION PROGRAM, QUARTERLY PROGRESS REPORT J. C. Chen p 1-2

2. APDA SODIUM TECHNOLOGY LOOP J. C. Chen p 2-3

3. SODIUM-HEATED STEAM GENERATOR DEVELOPMENT K. Hoffman p 3-4

4. PRESSURE MEASURING SYSTEMS FOR CLOSED CYCLE LIQUID METAL FACILITIES, SECOND QUARTERLY REPORT S. Kalish p 4-6

5. LOS ALAMOS SCIENTIFIC LABORATORY QUARTERLY STATUS REPORT ON PLUTONIUM REACTOR FUEL DEVELOPMENT O. E. Dwyer p 6

6. EFFECT OF HIGH TEMPERATURE SODIUM ON AUSTENITIC AND FERRITIC STEELS, PROGRESS REPORT 48 A. J. Romano p 6-7

7. EFFECT OF HIGH TEMPERATURE SODIUM ON AUSTENITIC AND FERRITIC STEELS, PROGRESS REPORT 49 C. J. Klamut p 8-9

8. MULTICOMPONENT ALKALI METAL ALLOYS C. J. Hsu p 9-10

9. EXTINGUISHMENT OF ALKALI METAL FIRES S. Kalish p 10-11 ref
10. STUDIES IN HEAT TRANSFER AND FLUID MECHANICS, PROGRESS REPORT FOR PERIOD JANUARY 1-SEPTEMBER 30, 1963 J. C. Chen p 11-13
11. EXPERIMENTAL CONDENSING-FLOW STABILITY STUDIES O. E. Dwyer p 13-14
12. SPACE POWERPLANT STARTUP AND TRANSIENT OPERATION SIMULATION WITH DIRECT-CONDENSING RADIATOR SYSTEM C. J. Hsu p 15-16
13. 15-kw SOLAR MECHANICAL ENGINE M. W. Marasca p 16-18
14. FIFTH QUARTERLY PROGRESS REPORT ON INVESTIGATION OF LIQUID METAL BOILING HEAT TRANSFER J. C. Chen p 18-19
15. REACTOR DEVELOPMENT PROGRAM PROGRESS REPORT O. E. Dwyer p 19-22
16. ELECTROLYTIC REMOVAL OF OXYGEN FROM SODIUM J. Egan p 22-23
17. ALKALI METALS BOILING AND CONDENSING INVESTIGATIONS, VOL. I-EXPERIMENTAL PROGRAM J. C. Chen p 23-24 ref
18. ALKALI METALS BOILING AND CONDENSING INVESTIGATIONS, QUARTERLY PROGRESS REPORT 8 J. C. Chen p 24-26
19. RESULTS OF THE USAEC ROUND-ROBIN ANALYSIS FOR CARBON IMPURITY IN SODIUM p 26-27
20. STUDY ON APPLICATION OF NUCLEAR ELECTRICAL POWER TO MANNED ORBITING SPACE STATIONS, PHASE III SNAP-8 EVALUATION K. C. Hoffman p 27-29
21. STUDY ON APPLICATION OF NUCLEAR ELECTRICAL POWER TO MANNED ORBITING SPACE STATIONS, FINAL SUMMARY REPORT K. C. Hoffman p 30-31

N65-15926# Los Alamos Scientific Lab., N. Mex.
STATUS REPORT ON OPACITY CALCULATIONS, SUPPLEMENT I
 Walter F. Huebner and Robert S. Stuart (AF Weapons Lab., Kirtland AFB, N. Mex.) 14 Jan. 1965 73 p refs
 (Contract W-7405-ENG-36)
 (LAMS-3002, Suppl. I) OTS: \$3.00

The results of a survey in the opacity field were compiled and are presented here, categorized according to the various phases of an opacity calculation. The categories considered include energy levels, wave functions, electronic occupation, bound-free transitions, free-free transitions, bound-bound transitions, scattering, molecular transitions, and complete opacity calculations. A list of scientists recently active in one or more of these fields is included. Author

N65-16024# Battelle Memorial Inst., Columbus, Ohio. Defense Metals Information Center
METAL DEFORMATION PROCESSING, VOLUME I
 F. W. Boulger, M. Baldwin, Jr., A. H. Clauer, J. A. Houck, M. J. Klein et al. 14 Aug. 1964 136 p refs
 (Contract AF 33(615)-1121)
 (DMIC-208; AD-608637)

CONTENTS:

1. EXTRUSION F. W. Boulger and D. E. Strohecker p 1-35 refs
2. FORGING F. W. Boulger and A. M. Sabroff p 36-61 refs
3. THERMAL MECHANICAL VARIABLES AFFECTING THE PROPERTIES OF REFRACTORY METALS AND ALLOYS J. A. Houck and H. R. Ogden p 62-71 refs
4. ROLLING William Marsh Baldwin, Jr. p 72-85 refs

5. DEVELOPMENT OF PREFERRED ORIENTATIONS A. R. Rosenfield p 86-92 refs
6. ANISOTROPY OF STRENGTH AND DUCTILITY A. H. Clauer p 93-104 refs
7. HIGH-STRAIN-RATE DEFORMATION Mark J. Klein p 105-113 refs
8. STRAIN AGING M. J. Klein and C. N. Reid p 114-126 refs

N65-16086*# Aerojet-General Corp., Azusa, Calif. Von Karman Center
SPACE ENVIRONMENT CRITERIA. SPACE ENVIRONMENT BIBLIOGRAPHY Semiannual Report, 1 Jul.-31 Dec. 1964

W. Jenisch, Jr. and D. Christensen 20 Jan. 1965 300 p refs
 /ts Rept.-2979
 (Contract NAS8-11285)
 (NASA-CR-60469) OTS: HC \$6.00/MF \$1.50

This is a bibliography of documents that will be considered in providing an accurate definition of the space, lunar, and planetary environments as they affect flight mechanics and the aerodynamic aspects of space travel. Present knowledge of the space environment is quantitatively incomplete. Concepts and ideas develop and change rapidly, and continual updating of this bibliography is necessary to keep abreast of the ever-expanding understanding of the space environment. Each of the documents contained herein will be considered and analyzed; this bibliography will be revised and updated, and only the most pertinent documents will be listed in the final report.

Author

N65-16205# Joint Publications Research Service, Washington, D.C.

POLYMER COMPOUNDS OF BORON

V. A. Zamyatina and N. I. Bekasova 9 Feb. 1965 26 p refs
 Transl. into ENGLISH from USP. Khim., v. 33, no. 10, 1964 p 1216-1231 OTS: \$1.00
 (JPRS-28683; TT-65-30301)

Scientific literature on polymer compounds containing boron is reviewed. The reports cited indicate the methods of synthesis, and describe the properties, structure, and behavior of the compounds. A bibliography of 120 references is included.

R.L.K.

N65-16226# Advisory Group for Aeronautical Research and Development, Paris (France).

INDEX TO AGARD PUBLICATIONS, 1952-1963

A. G. Vannucci and J. C. Dunne comp. (Min. of Aviation) [1963] 452 p refs

This revised index of 2161 items includes all the material in the 1952 to 1962 index, together with details of papers published in 1963 and some items from 1964 publications. Included are a subject index, an author index, and a report number and publication number index. In most cases, an abstract is also presented.

G.G.

N65-16418*# Georgia Inst. of Tech., Atlanta. Engineering Experiment Station

DETERMINATION OF ELECTRICAL CONDUCTIVITY OF MATING SURFACES—A LITERATURE SURVEY Final Report W. E. Woolf Dec. 1963 163 p refs
 (Contract NAS8-5292)

(NASA-CR-60526) OTS: HC \$5.00/MF \$1.00

A bibliography containing 477 entries on the subject of electrical impedance between mating metallic surfaces, is presented; in most cases an abstract is included. The report contains a brief analysis or survey of results related to topics such

as measurement of low impedance bonds, physical and chemical factors affecting the bond, changes of bond impedance with time, and lesser known methods of determining bond characteristics. Author

N65-16441# Air Force Systems Command, Inglewood, Calif. Systems Engineering Div.
AN ANNOTATED BIBLIOGRAPHY OF SPACE VEHICLE REENTRY AND ASSOCIATED PHENOMENA Technical Documentary Report, Jan. 1956-Mar. 1963
 R. H. Schorsch, comp. Oct. 1963 461 p
 (SSD-TDR-63-389; AD-427564)

This annotated bibliography results from an extensive literature survey of the theory and physical phenomenon associated with the reentry of space vehicles, and related information such as the interaction of electromagnetic waves with the hypersonically generated ionized sheath, techniques of reentry trajectory analysis and optimization, structural and material considerations, and many others. Only a limited number of references pertaining to specific reentry projects, such as the Mercury and Dyna-Soar Programs, are included. Literature surveyed covers the time period from January 1956 through March 1963, comprising 1150 references which are listed alphabetically by author or by originating agency if the author is unknown. The Armed Services Technical Information Agency (ASTIA) document numbers are also included, when available, to facilitate ordering. Author

N65-16501# Joint Publications Research Service, Washington, D.C.
INVESTIGATIONS OF STEELS AND ALLOYS
 19 Jan. 1965 83 p refs Transl. into ENGLISH from the book "Issledovaniya Staley i Splanov" Moscow, State Comm. on Ferrous and Nonferrous Metallurgy, 1964
 (JPRS-28358; TT-65-30154) OTS: \$3.00

CONTENTS:

1. SURFACE SATURATION OF TRANSITION REFRACTORY METALS WITH CARBON AND BORON G. V. Samsonov and A. P. Epik p 1-11 refs (See N65-16502 07-17)
2. DIFFUSION WELDING OF TITANIUM, TUNGSTEN, AND MOLYBDENUM CARBIDES A. L. Burykina and O. V. Yevtushenko p 12-20 refs (See N65-16503 07-15)
3. EFFECT OF RHENIUM AND IRIUM ON THE PROPERTIES OF HEAT-RESISTING NICKEL ALLOYS G. V. Yestulin and T. V. Svistunova p 21-26 refs (See N65-16504 07-17)
4. ASPECTS OF HOT WORKING OF HARD-TO-FORGE ALLOYS M. Ya. Dzugudov p 27-40 refs (See N65-16505 07-17)
5. RELATIONSHIP OF STRENGTH PROPERTIES AT HIGH TEMPERATURES TO HEATING RATE FOR ARMCO IRON AND STEELS 1Kh 18N9T AND EI-925 I. V. Doronin, Ye. K. Zakharov, and I. N. Kidin p 41-46 (See N65-16506 07-17)
6. CAST HEAT-RESISTING ALLOY ALLOYED WITH NITROGEN FOR OPERATION AT 600-700°C Yu. A. Nekhendzi and K. P. Lebedev p 47-58 refs (See N65-16507 07-17)
7. EFFECT OF CASING AND DIE CONE ANGLE ON THE PROCESS OF EXTRUDING HEAT-RESISTING ALLOYS L. M. Moguchiy p 59-68 refs (See N65-16508 07-17)
8. EFFECT OF VARIOUS TYPES OF TREATMENT ON CERTAIN PROPERTIES OF STEELS SN-2 AND SN-3 V. S. Postnikov, G. A. Gorshkov, I. V. Zolotukhin, I. M. Sharshakov, and V. V. Usanov p 69-80 refs (See N65-16509 07-17)

N65-16598*# National Aeronautics and Space Administration, Washington, D.C.

EXTRATERRESTRIAL LIFE, A BIBLIOGRAPHY. PART I: REPORT LITERATURE, 1952-1964

Sep. 1964 80 p refs

(NASA-SP-7015, Pt. I) GPO: HC \$0.45; OTS: MF \$0.75

Although this bibliography is primarily concerned with the general subjects of extraterrestrial life and exobiology, topics that are directly pertinent to the search for extraterrestrial life are included. Among these are the origin of life on earth, the suitability of other planets for the development of indigenous life, the possibility of intelligent extraterrestrial life forms, techniques and instrumentation for the detection of extraterrestrial life, the chemical basis of life including the synthesis of organic compounds from simple precursors, and terrestrial contamination of spacecraft. Several references, which describe

N65-16663# International Union of Pure and Applied Chemistry, Basle (Switzerland).

BIBLIOGRAPHY ON THE HIGH TEMPERATURE CHEMISTRY AND PHYSICS OF GASES AND GAS-CONDENSED PHASE REACTIONS

L. Brewer, comp. (Calif. Univ., Berkeley) 31 Dec. 1964 35 p refs

(Rept.-13)

N65-16676# Air Force Systems Command, Wright-Patterson AFB, Ohio. Foreign Technology Div.

PROBLEMS OF HEAT TRANSFER AND HYDRAULICS OF TWO PHASE MEDIA Collection of Articles

S. I. Mochan, ed. 31 Aug. 1964 434 p refs Transl. into ENGLISH of the book "Teplootdachi i Gidravliki Dvukhfaznykh Sred" Moscow, Gos. Energ. Izd., 1961 p 1-392

(FTD-MT-64-371; AD-608079)

Articles on problems of heat transfer and hydraulics of liquid-gas systems. For individual titles see N65-16677-N65-16698.

N65-17124# Virginia Univ., Charlottesville. Dept. of Aerospace Engineering

BIBLIOGRAPHY OF SQUID PUBLICATIONS, OCTOBER 1963-SEPTEMBER 1964

Nov. 1964 41 p refs

(Contract Nonr-3623(00); Proj. SQUID)

(UVA-6-R; AD-609240)

CONTENTS:

1. PROPERTIES OF MATERIALS (TRANSPORT, STRUCTURAL) J. Kestin et al p 3-8
2. PHYSICAL PROCESSES George Rudinger et al p 9-18
3. CHEMICAL PROCESSES William J. Miller et al p 19-28
4. COMBUSTION PHENOMENA H. G. Wolfhard et al p 29-32
5. ENGINES AND PROPULSIVE SYSTEMS R. L. Leonard et al p 33-34
6. INSTRUMENTATION R. B. Dimick et al p 35

N65-17283*# National Bureau of Standards, Boulder, Colo.
THERMAL CONDUCTIVITY OF TEN CRYOGENIC LIQUIDS—A BIBLIOGRAPHY

L. A. Hall 15 Apr. 1963 21 p refs

(NASA Order R-45; NBS Proj. 8140-40-81450; NBS Proj. 8140-40-81141)

(NASA-CR-50292; NBS-7684) OTS: HC \$1.00/MF \$0.50

This bibliography contains 73 citations concerning the thermal conductivity of the following liquids: helium-3, helium-4, hydrogen, parahydrogen, deuterium, neon, air, fluorine, oxygen, nitrogen, argon, carbon monoxide, and methane. The information given in each citation includes author, title, reference, and subject and descriptor terms. In addition, the article is coded as to language, temperature range, form of data (numeric, graphic), type of article (experimental, review or compilation, theoretical, etc.), and general availability of the document. An index by fluid and an index by author are included to facilitate reference to pertinent documents which are listed serially by accession number. Author

N65-17297# International Union of Pure and Applied Chemistry, Basle (Switzerland). Commission on High Temperatures and Refractories

BIBLIOGRAPHY ON THE HIGH TEMPERATURE CHEMISTRY AND PHYSICS OF MATERIALS IN THE CONDENSED STATE, VOLUME 1964, NO. 4, OCTOBER-DECEMBER 1964

J. J. Diamond, ed. (Natl. Bur. of Standards, Washington) [1964] 60 p refs

N65-17316*# National Bureau of Standards, Boulder, Colo. **A BIBLIOGRAPHY OF THERMOPHYSICAL PROPERTIES FOR FLUORINE FROM 0° TO 300°K**

L. A. Hall and R. D. McCarty 1 Apr. 1963 24 p refs (NASA Order R-45)

(NASA-CR-50285; NBS-7676) OTS: HC \$1.00/MF \$0.50

This bibliography of thermophysical properties for fluorine from 0° to 300° K presents 51 citations which include author, title, reference, properties studied, temperature and pressure ranges, state of substance, type of data presented (i.e., whether the data are derived from experimental measurements, theoretical considerations or as a compilation from other sources), the form and amount of data. An index according to property, subindexed for state of substance, is included. Author

N65-17417# Texas A&M Univ., College Station.

THERMOLUMINESCENCE BIBLIOGRAPHY

Ernest E. Angino, N. Grogler (Bern Univ.), and Richard Mc Call (Controls for Radiation, Inc.) Feb. 1965 101 p refs (TID-3911; Rev. 2) OTS: \$4.00

N65-17610*# Aerojet-General Corp., Azusa, Calif. Special Products Dept.

SPACE ENVIRONMENT CRITERIA: SPACE ENVIRONMENT BIBLIOGRAPHY Semiannual Report No. 2979

Wesley W. Howard and R. L. Buller Huntsville, Ala., NASA, Marshall Space Flight Center, 3 Feb. 1965 298 p refs (Contract NAS8-11285)

(NASA-CR-61037) OTS: HC \$6.00/MF \$1.50

The literature survey was completed and analysis of the data was initiated. The completed bibliography is included. The listed documents were separated into major environment groups and alphabetized under each environmental parameter. The information contained emphasizes radiation, space debris, and magnetic fields of interplanetary space, with cosmic rays and solar phenomena being treated secondarily. The lunar environment section is concerned with the geological aspects of the lunar surface, the atmosphere, and meteoroid environment. The planetary environment section deals largely with the definition of the various atmospheric structures. The sources of information for this bibliography are books, periodicals, meeting papers and conference proceedings, translations of foreign articles, and scientific and technical aerospace reports. Author

N65-17879*# National Aeronautics and Space Administration, Washington, D. C.

AEROSPACE MEDICINE AND BIOLOGY — A CONTINUING BIBLIOGRAPHY

Jan. 1965 182 p refs

(NASA-SP-7011(06)) OTS: HC \$1.00/MF \$1.25

Subjects covered are the biological, physiological, psychological, and environmental effects to which man is subjected during and following simulated or actual flight in the earth's atmosphere or in interplanetary space. In addition, similar effects on biological organisms of lower order are included. Related topics such as sanitary problems, pharmacology, toxicology, safety, and survival, life support systems, exobiology, and personnel factors receive appropriate attention. Three organizations contribute to the publications—NASA, the American Institute of Aeronautics and Astronautics, and the Library of Congress. R.W.H.

N65-18021# Gt. Brit. Dept. of Scientific and Industrial Research. Radio Research Station

WORLD DATA CENTRE C ROCKETS AND SATELLITES, LIST OF REPORTS AND REPRINTS RECEIVED DURING THE PERIOD 1st JANUARY 1964-31st DECEMBER 1964

[1964] 29 p refs

N65-18347# Advisory Group for Aeronautical Research and Development, Paris (France).

STRUCTURAL STABILITY OF CONICAL AND SPHERICAL THIN SHELLS Bibliography 4

W. Thielemann, comp. (Deut. Forschungsanstalt für Luftfahrt) Sep. 1961 37 p refs

This bibliography is chronologically arranged by time intervals from 1900 through 1961. Listings are arranged alphabetically by author within intervals. Abstracts are presented if available, and an author index is included. E.P.V.

N65-18986# Aerospace Research Labs., Wright-Patterson AFB, Ohio. Metallurgy and Ceramics Research Lab.

AN ANNOTATED BIBLIOGRAPHY OF RESEARCH ON THE STRUCTURAL AND PHYSICAL PROPERTIES OF ZIRCONIA

Berthold C. Weber Nov. 1964 94 p refs

(ARL-64-205; AD-610758)

This bibliography covers the literature of the past 35 years although some older references are included because they are often quoted. Three hundred and seven references have been individually evaluated. The discussion of the subject is arranged in 12 sections dealing with topics of particular interest to the researcher. It is emphasized that inadequately defined test materials and insufficient control of experimental conditions are the main reasons for conflicting literature data concerning the structural and physical properties of zirconia. Author

N65-19038*# National Aeronautics and Space Administration, Washington, D. C.

AEROSPACE MEDICINE AND BIOLOGY A Continuing Bibliography

Feb. 1965 112 p refs

(NASA-SP-7011(08)) CFSTI: HC \$1.00/MF \$0.75

An annotated bibliography is given of unclassified reports and journal articles that were introduced into the NASA information system during this period. The subject matter covers biological, physiological, psychological, and environmental effects to which man is subjected during and following simulated or actual flight in the atmosphere or in space. These

références were announced previously in separate publications by the Library of Congress, the American Institute of Aeronautics and Astronautics, and NASA. The references are indexed by subject, corporate source, and personal author.

R.L.K.

N65-19271*# National Aeronautics and Space Administration, Washington, D. C.

A CUMULATIVE INDEX TO THE 1964 ISSUES OF A CONTINUOUS BIBLIOGRAPHY ON AEROSPACE MEDICINE AND BIOLOGY

Feb. 1965 562 p Supersedes indexes to SP-7011 and SP-7011(01)-SP-7011(06)

(NASA-SP-7011(07)) CFSTI: HC \$5.00/MF \$2.75

N65-19336# California Univ., Livermore. Lawrence Radiation Lab.

MARAGING STEEL, A BIBLIOGRAPHY

Penelope Bloom Dec. 1964 52 p refs

(Contract W-7405-ENG-48)

(UCRL-12223) CFSTI: \$3.00

N65-19482# Picatinny Arsenal, Dover, N. J. Feltman Research Labs.

A BIBLIOGRAPHY ON SELECTED PROPERTIES OF THE SODIUM, POTASSIUM, AND RUBIDIUM NITRATES, CHLORATES, AND BROMATES

Saul Krasner and Peter D. Townsend Oct. 1964 30 p refs

(PA-TR-3161; AD-452319)

This bibliography contains references on the nitrates, chlorates, and bromates of sodium, potassium, and rubidium with particular emphasis on the following subjects: crystal growth, thermal decomposition, electron spin resonance, magnetic and optical properties, and radiation damage. Author

N65-19525# Atomic Energy Information Service, Frankfurt Am Main (West Germany).

AED INFORMATION SERVICE. SERIES C: BIBLIOGRAPHIES. SECTION 22: NUCLEAR SHIP PROPULSION

J. N. Paro, comp. Dec. 1964 51 p refs In GERMAN and ENGLISH /ts RCN-Mededelung No. 13

(AEC-C-22-03)

The task of supplying scientific and technical information to scientists and engineers in the nuclear energy field, who are assigned to the Atomic Energy Documentation Center in the Federal Republic of Germany is explained. A bibliography with author index is presented for nuclear ship propulsion.

E.E.B.

N65-19595# Atomic Energy Commission, Oak Ridge, Tenn. Div. of Technical Information

CONTROLLED FUSION AND PLASMA RESEARCH—A LITERATURE SEARCH

Sidney F. Lanier, comp. Jan. 1965 573 p refs

(TID-3557, Suppl. 2) CFSTI: \$6.00

A total of 3657 annotated references to research reports and journal articles are cited, covering work on fusion reactions, plasma physics, magnetohydrodynamics, magnetic fields, and other topics related to research in controlled fusion. Report number, availability, and author indexes are provided.

Author

N65-19620# Uppsala Univ., (Sweden). Quantum Chemistry Group

QUANTUM THEORY OF MANY-PARTICLE SYSTEMS Annual Summary Report, Sep. 1, 1963-Aug. 31, 1964

[1964] 8 p refs

(Contract AF 61(052)-701)

(ARL-65-25; AD-610079)

A bibliography of 50 research reports and published papers on quantum theory of many-particle systems is listed. Topics pertain to perturbation theory, molecule orbitals, crystals, wavefunctions, and eigenvalue problems.

J.M.D.

N65-19703*# National Aeronautics and Space Administration, Washington, D. C.

HIGH ENERGY PROPELLANTS—A CONTINUING BIBLIOGRAPHY

Mar. 1965 104 p

(NASA-SP-7002(01)) CFSTI: HC \$1.75/MF \$0.75

A selection of annotated references to unclassified reports and journal articles is presented. Prime emphasis is given to references on solid, liquid, and hybrid propellants and oxidizers. Also, extensive coverage of related topics, such as propellant handling and storage, combustion characteristics, toxicity, hazards, and safety measures, is provided.

R.W.H.

N65-19805# Gt. Brit. Dept. of Scientific and Industrial Research. Warren Spring Lab.

HUMAN SCIENCES IN INDUSTRY. PART I: ERGONOMICS

Annotated Bibliography

Dec. 1964 141 p refs

Ergonomics, methods, facilities, equipment, and general references; systems of men and machines; visual inputs and processes; auditory inputs and processes, including speech production and intelligibility; other sensory inputs and processes; choice and interaction; body measurements, basic physiological capacities, basic and complex motor performance; design of controls and integration with displays; layout of panels and consoles; design of work space, equipment, and furniture; clothing and personal equipment; special environmental factors affecting performance; individual factors, work conditions, and task characteristics that affect behavioral efficiency; training aids and devices; and other areas of psychological research pertinent to ergonomics are the 15 areas covered by this annotated bibliography.

E.E.B.

N65-19831# Lockheed Missiles and Space Co., Sunnyvale, Calif.

LONG-RANGE PLANNING AND TECHNOLOGICAL FORECASTING: AN ANNOTATED BIBLIOGRAPHY, SUPPLEMENT I

Peter R. Stromer, comp. Feb. 1965 40 p refs

(LMSC-5-10-65-3; SRB-65-1)

Emphasis is on planning within the aerospace and defense industry. During the past year both industry and government conducted introspective studies on such topics as potential convertibility of admitted industry overcapacity to peaceful pursuits and the economic impact of reductions in defense spending. Desirable diversification strategies and goals were rigorously assessed. While general conclusions may be lacking, sufficient data are available to aid in the decision-making process.

Author

N65-19834# Space Technology Labs., Inc., Redondo Beach, Calif. STL Technical Library

EXOBIOLOGY: A BIBLIOGRAPHY Research Bibliography No. 52, 1955-Jun. 1964

L. R. Magnolia, S. A. Gogin, and J. A. Turley Oct. 1964 170 p refs

(STL-9990-6737-KU-000; AD-449959)

This bibliography consists of 400 annotated references on the existence and detection of life outside the earth's biosphere, the origin of life, studies of meteoritic "life," and contamination problems. The majority of the items are those published during the period 1955 to June 1964. The abstracts are primarily those written by the individual authors. Author

N65-19900* National Aeronautics and Space Administration, Washington, D. C.
LUNAR SURFACE STUDIES A Continuing Bibliography, Apr. 1964-Jan. 1965
 Mar. 1965 61 p refs
 (NASA-SP-7003(01)) CFSTI: HC \$1.00/MF \$0.75

Contained in this bibliography are references to a variety of specific topics including the theory of lunar origin, the lunar atmosphere, and the physical characteristics of the body such as its topography, geology, cartography, and stratigraphy. Techniques of lunar observation, measurement, and analysis, e.g., photography, photometry, and spectrophotometry, are amply covered, and pertinent references to the instrumentation and equipment used in lunar investigation have also been included.

R.W.H.

N65-20016# Air Force Systems Command, Wright-Patterson AFB, Ohio. Foreign Technology Div.
BIBLIOGRAPHY OF PUBLICATIONS ON THE SUBJECT OF HEAT AND MASS EXCHANGE
 R. A. Dolinskaya 27 Nov. 1964 21 p refs Transl. into ENGLISH from Inzh.-Fiz. Zh. (USSR), v. 6, no. 12, 1963 p 127-134 (FTD-TT-64-395/1; AD-609136)

This short bibliography contains a variety of publications in the following fields: physics of low temperatures, plasma physics, thermonuclear reactions, general observations of heat and mass exchange, mathematical analytical methods, thermodynamics, experimental methods, phase conversion, chemical conversion, super high speed and drying processes, thermophysical and thermodynamic characteristics of various materials, heat conductors and determination methods, physics of high temperature processes and magnetic hydrodynamics, processes in nuclear reactors, and design processes and apparatus.

G.G.

N65-20070# Bell Telephone Labs., Inc., Whippany, N. J.
PROPERTIES OF FERRIMAGNETIC MATERIALS FOR MICROWAVE APPLICATIONS
 A. S. Boxer, J. F. Ollom, and R. F. Rauchmiller Jul. 1964 540 p refs
 (Contract AF 33(657)-8439)
 (ML-TDR-64-224; AD-612274)

CONTENTS:

1. THE PHYSICS OF FERRIMAGNETIC MATERIALS p 1-52 refs
2. GARNETS p 53-256 refs
3. SPINEL FERRITES p 257-446 refs
4. HEXAGONAL FERRITES p 447-518 refs

N65-20162* National Aeronautics and Space Administration, Washington, D. C.
X-15 RESEARCH RESULTS WITH A SELECTED BIBLIOGRAPHY
 Wendell H. Stillwell 1965 135 p refs
 (NASA-SP-60) GPO: \$0.55; CFSTI: MF \$1.00

New objectives and past accomplishments are summarized for the X-15 flight research program. Its role as a research

laboratory for high-altitude experiments and hypersonic component testing demonstrates its usefulness in areas inaccessible to rockets and satellites. The aircraft's research and development, configuration, powerplant, supersonic-hypersonic flight aerodynamic characteristics, hypersonic structure, flight dynamics, and man-machine integration are presented. R.N.A.

N65-20308# Stanford Research Inst., Menlo Park, Calif.
RESEARCH ON COMPUTER NEURISTOR DEVICES Final Summary Report, 1 Jun. 1960-1 Sep. 1964
 Milton W. Green 8 Jan. 1965 13 p refs
 (Contract Nonr-3212(00))
 (AD-610095)

The historical development of neuristor research activities, including the areas in which substantial progress was made, and the difficulties encountered in practical device realization are summarized. Logic studies were the subject of a very thorough treatment. As a result there now exists a comprehensive logical design basis for general neuristor systems. Basic problems involved in neuristor development, and the conflicting requirements for semiconductor materials are discussed. Also, solid-state lines that avoid the use of junctions were also studied. It was noted that although experimental semiconductor neuristors were nondistributed and relatively impractical, they did furnish the only demonstration of an all-electric neuristor device with logical capability. It was concluded that it will be an extremely difficult technical feat to achieve neuristor systems that are in any sense competitive with present logic devices.

E.E.B.

N65-20372# Federal Aviation Agency, Washington, D. C. Library Services Div.
AVIATION MEDICAL PAPERS AND REPORTS—A BIBLIOGRAPHY
 Oct. 1964 94 p
 (AM-64-20)

N65-20726# Rocketdyne, Canoga Park, Calif.
SOURCES OF INFORMATION ON THE EFFECTS OF HUMAN PERFORMANCE ON PRODUCT AND SYSTEMS EFFECTIVENESS

George A. Peters and Frank S. Hall 15 Feb. 1965 186 p refs
 Revised
 (RH-3398-J)

This is a comprehensive compilation of books, symposia, bibliographies, data, specifications, standards, handbooks, organizations, and other sources of information on ergonomics, system safety, bioastronautics, life sciences, aerospace medicine, reliability engineering, quality assurance, engineering psychology, personnel subsystem, and maintainability, with emphasis on human factors engineering. More than 1000 separate sources of information are listed or described. These are basic or primary references which provide access to the supporting literature, specify what should be done, describe how various functions might be accomplished, illustrate what was accomplished, or serve as design standards. Author

N65-20760# Federal Aviation Agency, Oklahoma City, Okla. Aeronautical Center
FUEL CELLS Selected References, 1953 through Mar. 1964
 Lois J. Stout, comp. Nov. 1964 105 p refs / Its Bibliographic List No. 2
 (AD-608880)

This bibliography contains 495 articles on fuel cells arranged by subject, and includes a personal name index. E.E.B.

N65-20837# Los Alamos Scientific Lab., N. Mex.
BIBLIOGRAPHY OF NUCLEAR INTERACTIONS OF He³
 WITH d, n, OR p AND OF d WITH n, p, OR T AT 3-30 MEV
 Betty S. Jackson 5 Mar. 1965 16 p refs
 (Contract W-7405-ENG-36)
 (LA-3205-MS) CFSTI: \$1.00

N65-20872# Air Weather Service, Scott AFB, Ill.
ESTIMATING METEOROLOGICAL EFFECTS ON RADAR PROPAGATION, VOLUME I
 W. B. Moreland Jan. 1965 207 p refs
 (TR-183, Vol. I; AD-459466)

Observed operational anomalies in radio-radar equipment performance and the important physical phenomena producing these anomalies are discussed. The most important contributing phenomenon in the explanation or prediction of anomalous performance is atmospheric refraction. Methods are presented for describing the refractive properties of an atmosphere in terms of specific refractivity conditions. The mechanisms of propagation from a transmitter to a point in space and several meteorological effects on these mechanisms are considered. Graphical methods are shown for computing bending, elevation angle, range, and height errors caused by atmospheric refraction. Refractivity climatology is discussed in connection with synoptic applications. General procedures for translating this information into useful propagation criteria are given, and operational procedures for meteorological support of radar missions are suggested. E.P.V.

N65-20927# Library of Congress, Washington, D. C. Aerospace Technology Div.
MIXING OF CONCENTRIC HIGH-VELOCITY AIRSTREAMS, COMPILATION OF ABSTRACTS Surveys of Soviet-Bloc Scientific and Technical Literature
 22 Mar. 1965 37 p
 (ATD-P-65-15; AD-459618) CFSTI: HC \$3.00/MF \$0.50

A compilation of abstracts of articles from the Soviet-Bloc scientific and technical literature on the subject of the mixing of concentric high-velocity airstreams is presented. E.E.B.

N65-21163*# National Aeronautics and Space Administration, Washington, D. C.
COMMUNICATIONS SATELLITES—A CONTINUING BIBLIOGRAPHY
 Apr. 1965 62 p
 (NASA-SP-7004(01)) CFSTI: HC \$1.00/MF \$0.75

N65-21184# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).
A REVIEW OF LITERATURE ON FLIGHT TECHNOLOGY [LITERATUUROVERZICHT, LUCHTVAARTTECHNIEK]
 12 Jan. 1965 19 p refs In DUTCH /its 13th Yearly Issue, No. L-270

Brief reviews of papers on flight technology are described. Properties and achievements of flight, steering, airfields, navigation and regulation of air traffic, safety, aerodynamics, strength and underwater vibrations, and technical news are reported. L.S.

N65-21185# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).
A REVIEW OF LITERATURE ON ARMY CONSTRUCTION [LITERATUUROVERZICHT, KRIJGSBOUWKUNDE]
 4 Jan. 1965 20 p refs In DUTCH /its 7th Yearly Issue, No. K-68

Abstracts on civil and mechanical engineering are presented. Among the subjects covered are: (1) instability of stiffened cylindrical shells subjected to hydrostatic pressure; (2) vibrational pile driving; (3) self-contained diesel pile driving hammers; (4) cable-type crossings; (5) sediment scour around structures due to wave action, stream flow, and waves superimposed upon stream flow; (6) pneumatic breakwaters; (7) air compressibility in deep water; (8) designs for naval shore facilities; (9) air-supported tentage; (10) acoustical treatment for engine test stands; (11) design requirements for infrared snow melting systems; (12) diffraction of a plane shock wave by an arbitrary rigid cylindrical obstacle; (13) damage assessment; (14) VTOL aircraft hardening; (15) blast closure devices; (16) Stephenson valves; (17) full-scale submarine test facility; and (18) dismountable pontoons. Author

N65-21198# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).
A REVIEW OF LITERATURE ON ATOMICS AND REACTOR TECHNOLOGY [LITERATUUROVERZICHT, ATOOMKERN-TECHNIEK EN REACTORKUNDE]
 Dec. 1964 32 p refs In DUTCH /its 6th Yearly Issue, No. R-69

Brief reviews of papers on atomics and reactor technology are described. Contents include reactors, reactor technology, instrumentation of reactors, reactor physics, waste disposal, safety, rays and their measurement, isotopes and their applications, laboratories, and technical news. L.S.

N65-21199# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).
A REVIEW OF LITERATURE ON GENERAL MACHINE CONSTRUCTION [LITERATUUROVERZICHT, ALGEMENE WERKTUIGBOUW]
 25 Dec. 1964 24 p refs In DUTCH /its 2nd Yearly Issue, No. AW-17

Brief reviews of literature on general machine construction are described. Contents include firing motors, gas and steam turbines, steam installations, cooling and ventilation, machines, machine parts and oiling, materials, and technical news. L.S.

N65-21200# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).
A REVIEW OF LITERATURE ON DOMESTIC TRANSPORTATION [LITERATUUROVERZICHT, INTRINSIC TRANSPORT]
 Jan. 1965 13 p refs In DUTCH /its No. 44

Abstracts on handling, storage, and transportation problems of industry are presented. Among the subjects covered are: automated warehouses; high-speed bottling; mechanization; computers; man-hours reduction; tools; distribution costs; remote control; gravity material handling; tractors; loaders; crawlers; trucks; cranes; ball-bearing slewing rings; 2 1/2-mile potash conveyor; sorting systems; fruit conveyance on 32- X 48-inch pallets; palletization; sorting and counting in food production; counting scales; containers for powdery goods; reclaim-rubber process handling; accident prevention; ferry service; rust and corrosion; aluminum alloy cladding; unit loading; warehouse control; mechanized fertilizer plant; packaging; and strapping as an aid to production. E.E.B.

N65-21201# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).
A REVIEW OF LITERATURE ON METEOROLOGY AND CLIMATOLOGY [LITERATUUROVERZICHT, METEOROLOGIE EN KLIMATOLOGIE]
 16 Jan. 1965 24 p refs In DUTCH /its 11th Yearly Issue, No. M-122

Abstracts on meteorology and climatology are presented. Among the subjects covered are: (1) synoptic and upper air observations in the Netherlands; (2) meteorological parameters in the Netherlands during 1962; (3) bivane and sonic techniques for measuring the vertical wind component; (4) Tiro 8 picture transmission; (5) computer system selection for meteorological operations; (6) static stability variation in two-layer quasi-geostrophic models; (7) vertical structure of the atmosphere; (8) tropospheric diabatic heating and the generation of available potential energy; (9) energetics of the mean and eddy circulations in the lower stratosphere; (10) seasonal persistence and recurrence of European blocking during 1958-1960; (11) model of the 26-month oscillation in tropical latitudes; (12) winds; (13) cloud structure and distributions; and (14) atmospheric turbulence. E.E.B.

N65-21202# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).

A REVIEW OF LITERATURE ON MILITARY MEDICINE [LITERATUUROVERZICHT, MILITAIRE GENEESKUNDE]

15 Jan. 1965 21 p refs In DUTCH *Its* 11th Yearly Issue. No. G-119

Abstracts on aerospace medicine, military medicine and hygiene, psychology and psychiatry, and radiation medical physics are presented. Among the subjects covered are (1) systematic absorption of radioactive sodium in fresh and healing traumatic wounds; (2) absorption of radioactive fallout products through normal skin, burns, and open wounds; (3) acute radiation syndrome in domestic animals; (4) electroencephalography in aviation medicine; (5) ozone in high-altitude aircraft cabins; (6) airplane noises; (7) aircraft accidents; (8) combat fatigue; (9) factors associated with psychiatric discharge from the naval service; (10) infection of the urinary tract in young men; (11) influence of army service on the incidence of carriers of *Staphylococcus aureus* and *Streptococcus pyogenes*; (12) aging in the Royal Navy; (13) thermal comfort in a small warship; and (14) underwater diving accidents. E.E.B.

N65-21226*# Bunker-Ramo Corp., Canoga Park, Calif.

A BIBLIOGRAPHY OF RUSSIAN SCIENTIFIC AND TECHNOLOGICAL LITERATURE IN MANUAL CONTROL AND ASSOCIATED AREAS

C. M. Bertone Washington, NASA, Apr. 1965 137 p (Contract NASw-869)

(NASA-CR-199) CFSTI: HC \$4.00/MF \$1.00

This report is a survey of 917 Soviet documents in the areas of manual control systems, human engineering, man in space, and associated areas. The information is reported in bibliographic form with an analysis of the findings and appropriate appendices. Author

N65-21369# Oak Ridge National Lab., Tenn. Nuclear Safety Information Center

INDEXED BIBLIOGRAPHY OF CURRENT NUCLEAR SAFETY LITERATURE—1

William B. Cottrell et al Apr. 1965 151 p (Contract W-7405-ENG-26)

(ORNL-NSIC-8)

Reports on safety in nuclear powerplants, reactors, materials handling, and facility operations are presented. Indexed by subject and personal author, the abstracts are listed under 18 category headings with an added category for nonannotated bibliographies. E.P.V.

N65-21424*# Library of Congress, Washington, D. C. Space and Technology Div.

AEROSPACE MEDICINE AND BIOLOGY, AN ANNOTATED BIBLIOGRAPHY. VOLUME XI: 1962-1963 LITERATURE

Roman Kenk, ed. 1965 501 p refs Sponsored by NASA (NASA-CR-62127) CFSTI: HC \$5.00/MF \$2.50

A selection of 2335 journal articles and other pertinent references are compiled in abstracted form. The bibliography is divided into the following sections: *General Aspects; Biology; General Physiology; Neuro and Sensory Physiology; Psychology and Psychiatry; Biological, Physiological, and Psychological Effects of Environmental Factors and Stresses; Personnel; Medical Problems and Pharmacology; Toxicology; Safety, Survival, and Rescue; and Man-Machine Integration and Life Support Systems*. Included are author, corporate, and subject indexes. G.G.

N65-21437# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).

A REVIEW OF LITERATURE ON ELECTROTECHNOLOGY [LITERATUUROVERZICHT, ELECTROTECHNIEK]

21 Jan. 1965 27 p refs In DUTCH *Its* 14th Yearly Issue. No. E-456

A short annotated literature review on electrotechnology is presented pertaining to the following topics: *Telecommunications; Electromagnetic Beaming; Treatment of Information; Computers and Logical Switches; Measurement and Regulating Techniques; Miniaturization; Interference and Reliability; Oscillators and Strengtheners; Components, Materials, and Networks; Modulation; Energy Techniques, Feeding, Equalizing, and Machines; and Miscellaneous*. G.G.

N65-21621# Atomic Energy Commission, Washington, D. C. Div. of Research

SUMMARIES OF THE USAEC RESEARCH PROGRAM ON CONTROLLED THERMONUCLEAR REACTIONS

Mar. 1965 68 p refs

(TID-4005(Pt. 5)) CFSTI: \$3.00

Summaries are given showing project objectives and status of the research, for the following classes: experimental hot plasma studies, experimental cold plasma studies, theoretical plasma studies, cross sections, vacuum and wall studies, diagnostic techniques, and cryogenics. G.G.

N65-21659*# National Aeronautics and Space Administration, Goddard Space Flight Center, Greenbelt, Md.

BIBLIOGRAPHY OF PARTICLES AND FIELDS RESEARCH

W. N. Hess, G. D. Mead, and M. P. Nakada Jan. 1965 88 p refs (NASA-TM-X-55192; X-640-65-37) CFSTI: HC \$3.00/MF \$0.75

N65-21697# Hughes Aircraft Co., Culver City, Calif.

A SELECTED BIBLIOGRAPHY ON POWER SPECTRUM ANALYSIS, JANUARY 1961-AUGUST 1964

Janice L. Hanks, comp. Oct. 1964 11 p refs (LS-BIB-64-3)

N65-21735* National Aeronautics and Space Administration, Washington, D. C.

A BIBLIOGRAPHY OF WORKS IN RUSSIAN ON AVIATION MEDICINE UP TO 1950

In its Essay on the Hist. of Aviation Med. Apr. 1965 p 254-398 refs (See N65-21725 11-04) CFSTI: HC \$7.25/MF \$2.25

A bibliography of approximately seventeen hundred Russian publications on aviation medicine is given. Titles are listed in alphabetical order of senior author's last name, and sources are given. J.M.D.

N65-21737*# National Aeronautics and Space Administration, Washington, D. C.

BIBLIOGRAPHIES ON AEROSPACE SCIENCE—A CONTINUING BIBLIOGRAPHY, JUN. 1964-FEB. 1965

Apr. 1965 57 p

(NASA-SP-7006(01)) CFSTI: HC \$1.00/MF \$0.50

An annotated bibliography with references to provide a convenient source of information for aerospace scientists and engineers is assembled. Each entry consists of a citation and, when available, abstract. Report literature and journal and book references are included.

R.W.H.

N65-21922# Royal Aircraft Establishment, Farnborough (England).

LIST OF R.A.E. TRANSLATIONS ISSUED DURING THE PERIOD 1 JANUARY TO 31 DECEMBER 1964

S. W. Salt, comp. London, Min. of Aviation, Feb. 1965 5 p (RAE-LIB-BIBL-254)

This list gives, in numerical order, all R.A.E. Library translations published during 1964.

Author

N65-22098# Atomic Energy Commission, Washington, D. C. Div. of Technical Information

BIOLOGICAL APPLICATIONS OF GAMMA RADIATION

Helen L. Ward, comp. Jan. 1965 99 p refs

(TID-3580) CFSTI: \$3.00

This bibliography contains 962 selected references on the uses of gamma radiation in all fields of biological and medical research. The major reference sources were: *Nuclear Science Abstracts*, *The Bibliography of Agriculture*, *Biological Abstracts*, *Chemical Abstracts*, *Index Medicus*, and *International Abstracts of Biological Sciences*. The period covered was 1958 through 1963. Author and report number availability indexes are included.

Author

N65-22229# Army Materials Research Agency, Watertown, Mass. Materials Technology Div.

A REPORT GUIDE TO LIQUID PENETRANT LITERATURE

Ernest H. Rodgers and Charles P. Merhib Aug. 1964 56 p refs (AMRA-MS-64-12; AD-612044)

This guide consists of a bibliography of items currently in the AMRA nondestructive testing information retrieval system covering the subject of liquid penetrants. Where available, each item in this journal consists of the following information: (1) item report, or article title; (2) author or authors; (3) source or facility; (4) report number or identification; (5) date; and (6) abstract. Word descriptors pertinent to each item are listed in alphabetical order and are cross-referenced by the AMRA identification number. Also provided is an author index or, if no author is available, then the issuing organization is listed.

TAB

N65-22230# Army Materials Research Agency, Watertown, Mass. Materials Technology Div.

A REPORT GUIDE TO THERMAL TESTING LITERATURE

Charles P. Merhib and Ernest H. Rodgers Aug. 1964 47 p refs

(AMRA-MS-64-14; AD-612043)

This guide consists of a bibliography of items currently in the AMRA nondestructive testing information retrieval system covering the subject of thermal testing. Where available, each item in this journal consists of the following information: (1) item, report, or article title; (2) author or authors; (3) source or facility; (4) report number or identification; (5) date; and (6) abstract. Word descriptors pertinent to each item are listed in alphabetical order and are cross referenced by the AMRA identification number. Also provided is an author index or, if no author is available, the issuing organization is listed.

TAB

N65-22332# Army Materials Research Agency, Watertown, Mass. Materials Technology Div.

A REPORT GUIDE TO GAMMA RADIOGRAPHIC LITERATURE

Ernest H. Rodgers and Satrak Der Boghosian Aug. 1964 104 p refs

(AMRA-MS-64-11; AD-612042)

This guide consists of a bibliography of items currently in the AMRA nondestructive testing information retrieval system covering the subject of gamma radiography. Where available, each item in this journal consists of the following information: (1) item, report, or article title; (2) author or authors; (3) source or facility; (4) report number or identification; (5) date; and (6) abstract. Word descriptors pertinent to each item are listed in alphabetical order and are cross-referenced by the AMRA identification number. Also provided is an author index or, if no author is available, then the issuing organization is listed.

TAB

N65-22333# Army Materials Research Agency, Watertown, Mass. Materials Technology Div.

A REPORT GUIDE TO LITERATURE IN THE FIELDS OF FLUOROSCOPY AND REMOTE VIEWING TECHNIQUES

Charles P. Merhib and Satrak Der Boghosian Aug. 1964 43 p refs

(AMRA-MS-64-13; AD-612045)

This guide consists of a bibliography of items currently in the AMRA nondestructive testing information retrieval system covering the subject of fluoroscopy and remote viewing techniques. Where available, each item in this journal consists of the following information: (1) item, report or article title; (2) author or authors; (3) source or facility; (4) report number or identification; (5) date; and (6) abstract. Word descriptors pertinent to each item are listed in alphabetical order and are crossreferenced by the AMRA identification number. Also provided is an author index or, if no author is available, then the issuing organization is listed.

TAB

N65-22374 Illinois Univ., Urbana. Engineering Experiment Station

ELASTIC PLATES: ANNOTATED BIBLIOGRAPHY, 1930-1962

George E. Sliter, Robert J. Nikolai, and Arthur P. Boresi Oct. 1964 230 p refs

(Grants NSF G-14647; NSF GP-903)

(TR-10) Available from Eng. Publ. Office: \$1.00

This set of references on plate theory considers the general problem of bending of elastic plates. Over 85% of the 994 English language papers reviewed were annotated. In cases where critical reviews of papers are available, *The Applied Mechanics Review* reference number is appended to the entry. The bibliography does not include, in most cases, problems in the following categories: (a) plane problems of elasticity, (b) plastic, elastoplastic, and viscoelastic behavior of plates, (c) aerodynamic problems of panel flutter, (d) buckling of plate webs, (e) corrugated plates, and (f) experimental methods. The papers are classified topically and, in each category, papers are listed alphabetically by author.

Author

N65-22386# Naval Ordnance Test Station, China Lake, Calif. Underwater Ordnance Dept.

A BIBLIOGRAPHY OF CETACEA, LITERATURE PUBLISHED BETWEEN 1949 AND 1963

Ina L. Squire, comp. Dec. 1964 121 p refs

(NAVWEPS-8645; NOTS-TP-3686; AD-613005)

The bibliography was compiled as part of a continuing program of Cetacea research initiated at the Naval Ordnance Test Station. The initial collection of references has been extended

to include pertinent literature published between the years 1949 and 1962. It has been assembled in categories designed to assist investigators pursuing specialized aspects of Cetacean research
TAB

N65-22492# Army Materials Research Agency, Watertown, Mass. Materials Technology Div.
A REPORT GUIDE TO AUTORADIOGRAPHIC AND MICRO-RADIOGRAPHIC LITERATURE
Ernest H. Rodgers Aug. 1964 32 p refs
(AMRA-MS-64-10; AD-612047)

This guide consists of a bibliography of items currently in the AMRA nondestructive testing information retrieval system covering the subjects of autoradiography and microradiography. Where available, each item in this journal consists of the following information: (1) item report, or article title, (2) author or authors, (3) source or facility, (4) report number or identification, (5) date, and (6) abstract. Word descriptors pertinent to each item are listed in alphabetical order and are cross-referenced by the AMRA identification number. Also provided is an author index or, if no author is available, then the issuing organization is listed.
TAB

N65-22568# Library of Congress, Washington, D. C. Aerospace Technology Div.
SURFACE CHARACTERISTICS OF THE MOON, MARS, AND VENUS. ANNOTATED BIBLIOGRAPHY
1 Mar. 1965 81 p ref
(ATD-P-65-12; AD-458260) CFSTI: HC \$3.00/MF \$0.75

An annotated bibliography of the surface characteristics of Mars, Venus, and the Moon is presented with emphasis on light polarization and albedo measurement techniques as well as radio-astronomical studies. Information on tektites is also presented. The report covers 125 research studies from the years 1960 to mid-1963. More recent findings from about mid-1963 through mid-1964 are included in appendixes A to C.
G.G.

N65-22614*# National Aeronautics and Space Administration, Washington, D. C.
AEROSPACE MEDICINE AND BIOLOGY—A CONTINUING BIBLIOGRAPHY
Mar. 1965 145 p refs
(NASA-SP-7011(09)) CFSTI: HC \$1.00/MF \$1.00

An annotated bibliography covering aerospace medicine and biology entries introduced into the NASA Information System during February 1965 is presented. Included are references from Scientific and Technical Aerospace Reports, American Institute of Aeronautics and Astronautics Technical Information Service, and the Library of Congress.
L.S.

N65-22615*# National Aeronautics and Space Administration, Washington, D. C.
AEROSPACE MEDICINE AND BIOLOGY—A CONTINUING BIBLIOGRAPHY
Apr. 1965 124 p refs
(NASA-SP-7011(10)) CFSTI: HC \$1.00/MF \$1.00

An annotated bibliography covering aerospace medicine and biology entries introduced into the NASA Information Service during March 1965 is presented. Included are references from Scientific and Technical Aerospace Reports, American Institute of Aeronautics and Astronautics Technical Information Service, and the Library of Congress.
M. P. G.

N65-22778# Library of Congress, Washington, D. C. Aerospace Technology Div.
SOVIET MICROMETEOROLOGY, COMPILATION OF ABSTRACTS Surveys of Soviet-Bloc Scientific and Technical Literature
14 Apr. 1965 69 p /ts Rept.-3
(ATD-P-65-18; AD-461108) CFSTI: HC \$3.00/MF \$0.75

An annotated bibliography of reports on various aspects of Soviet micrometeorology, based on selected representative Soviet open source literature published in 1962 is given. The data are grouped under the subject headings of general, aerosols, stagnant weather conditions, air pollution, and boundary layer turbulence.
L.S.

N65-22844# Max-Planck-Institut für Biophysik, Frankfurt am Main (West Germany).
RADIATION EFFECTS ON LIVING TISSUES AND ORGANISMS. SERIES C: BIBLIOGRAPHIES
W. Stahlhofen, comp. AED Information Service, 1965 176 p refs
(AED-C-04-16)

A bibliography of various studies pertaining to the radiation effects on living tissues and organisms for the years 1962 and 1963 is presented. The 540 publications are recorded on IBM punch cards and numbered for easy retrieval so that the research information is readily available to interested research and industrial centers in Germany.
G.G.

N65-22948# David Taylor Model Basin, Washington, D. C. Acoustics and Vibration Lab.
SHIPBOARD VIBRATION RESEARCH IN THE U.S.A.
Edward F. Noonan Dec. 1964 81 p refs Presented at 2nd Intern. Ship Struct. Congr., Delft, Netherlands, Jul. 1964
(DTMB-1891; AD-611004)

A brief review of the hull vibration program is given. A bibliography of selected reports and papers on ship and machinery vibration is included. A code for shipboard hull vibration measurements is presented. This code is used in the evaluation of commercial type ships.
Author

N65-22968*# National Aeronautics and Space Administration, Washington, D. C.
BIBLIOGRAPHIC INDEX TO LITERATURE ON AEROSPACE MEDICINE AND BIOASTRONAUTICS PUBLISHED IN THE USSR (1962-1964) [BIBLIOGRAFICHESKIY UKAZATEL' LITERATURY PO AVIAKOSMICHESKOY MEDITSINE I BIOASTRONAVTIKE, IZDANNOY V SSSR (1962-1964)]

L. I. Boreva and E. M. Zavodovskaya, comp. May 1965 69 p refs Transl. into ENGLISH of the paper presented at the 15th Intern. Astronautical Congr., Warsaw, 7-12 Sep. 1964
(NASA-TT-F-270) CFSTI: HC \$3.00/MF \$0.75

This bibliographic index includes the basic scientific publications in the areas of space medicine and bioastronautics published in the U.S.S.R. from 1962 to 1964. It encompasses studies in *General Problems of Space Biology and Aerospace Medicine; Experimental Investigations on Spacecraft Satellites, High-Altitude Geophysical Rockets and Aircraft; Results of Laboratory Investigations with Simulation of the Effects of Space Flight Factors; Methodology; Experimental Investigations on Spacecraft Satellites, High-Altitude Geophysical Rockets, Aircraft and in Parachute Jumps; and Question of Evaluation, Selection and Preparation of Flight Crews.*
G.G.

N65-22985# Oak Ridge National Lab., Tenn. Research Materials Information Center

GROUPS IV, V, AND VI TRANSITION METALS: SELECTED REFERENCES ON PREPARATION, STRUCTURE, PHYSICAL PROPERTIES, METALLOGRAPHY, AND TRANSPORT PROPERTIES

Apr. 1965 96 p refs

(ORNL-RMIC-3 (Rev.))

An annotated bibliography is presented on the transition metals of periodic table groups IV, V, and VI. General headings for the topics are preparation methods, crystal structure, phase transitions, transport properties, and physical and mechanical properties. Specific topics include polymorphism, defects, characterization and assay methods, diffusion, electrical and thermal conductivity, heat capacity, deformation, hardness, and magnetic properties. Informative abstracts are included for most titles.

J.M.D.

N65-23043# Space Technology Labs., Redondo Beach, Calif. STL Technical Library

MANNED MARS MISSIONS: A BIBLIOGRAPHY

L. R. Magnolia and S. A. Gogin, comp. Apr. 1965 152 p refs
Its Res. Bibliog. No. 53

(STL-9990-6903-KU-000)

This bibliography consists of 348 annotated references dealing with manned Mars flyby and stopover missions, unmanned precursor missions, and Earth-based studies of Mars. The majority of the items are those published from 1955 to January 1965. The abstracts are primarily written by the authors. If an author does not include an abstract with his paper, one is prepared from the text of the report using the author's words; if this is impractical, a brief summary statement or table of contents is provided.

Author

N65-23268# International Union of Pure and Applied Chemistry, Basle (Switzerland).

BIBLIOGRAPHY ON THE HIGH TEMPERATURE CHEMISTRY AND PHYSICS OF MATERIALS IN THE CONDENSED STATE, JANUARY, FEBRUARY, MARCH 1965, VOLUME 1965, NUMBER 1

J. J. Diamond, ed. (NBS, Washington, D. C.) [1965] 60 p refs

N65-23322# National Bureau of Standards, Washington, D. C. **PHOTOCHROMISM AND PHOTOTROPISM**

Nov. 1964 13 p refs

(QTR-103) CFSTI: \$0.50

This project involved the fields of photochromism and phototropism. Most of this R&D has been concentrated in the visible, near-infrared, and ultraviolet ranges of the spectrum. Basic research in these fields has been oriented toward elucidating the reaction mechanisms of these compounds. Applied research programs have resulted in the synthesis of new reactive materials and new improved concepts for application of reversible systems. Possible uses of these systems include eye-protective devices, optical memory devices in computers, and modulating or monitoring light valves.

Author

N65-23439# Joint Publications Research Service, Washington, D. C.

TRANSLATIONS FROM METEOROLOGIYA I GIDROLOGIYA (METEOROLOGY AND HYDROLOGY), NO. 2, 1965

7 Apr. 1965 48 p refs Transl. into ENGLISH from Meteorol. i Gidrol. (Moscow), no. 2, 1965 p 3-12, 20-24, 38-52
(JPRS-29481; TT-65-30674) CFSTI: \$2.00

CONTENTS:

1. EXPERIENCE GAINED IN OPERATIONAL NUMERICAL FORECASTS OF CONTINUOUS PRECIPITATION
B. D. Uspenskiy p 1-12 refs (See N65-23440 13-20)

2. POSITION OF THE ISOPAUSE IN STRATOSPHERIC CYCLONES AND ANTICYCLONES AND THE CONNECTION OF ITS HEIGHT WITH THE VERTICAL DISTRIBUTION OF OZONE
L. A. Uranova p 13-19 refs (See N65-23441 13-20)

3. USE OF METEOROLOGICAL INFORMATION AND FORECASTS IN PROVIDING RECOMMENDED COURSES TO SHIPS
K. P. Vasil'yev p 20-23 (See N65-23442 13-20)

4. ON INCREASING THE EFFECTIVENESS IN USING THE "OBLAKO" AND "RNGO-A-26"
K. I. Zarubin p 24-26

5. WORLD CLIMATIC ATLAS (GERMAN DEMOCRATIC REPUBLIC)
F. F. Davitaya p 27-29 refs

6. NEW BOOKS
A. M. Kekukh p 30-32

7. LITERATURE ON METEOROLOGY AND HYDROLOGY FOR 1964 p 33-40

8. IN THE MAIN ADMINISTRATION OF THE HYDRO-METEOROLOGICAL SERVICE p 41-43

9. CONFERENCES, MEETINGS AND SEMINARS p 44-45

10. ABROAD
V. N. Adamenko et al p 46-47

N65-23490# Deutsche Versuchsanstalt für Luft- und Raumfahrt, Porz (West Germany). Dokumentation und Zentralbibliothek

GENERAL BIBLIOGRAPHY, PART I, 1912-1945 [GESAMT-BIBLIOGRAPHIE, TEIL I, 1912-1945]

Klaus Laisiepen, comp. [1962] 89 p refs In GERMAN

N65-23596# Atomic Energy Commission, Washington, D. C. Div. of Biology and Medicine

TERRESTRIAL AND FRESHWATER RADIOECOLOGY A Selected Bibliography (Supplement 3)

Alfred W. Klement, Jr. and Vincent Schultz Feb. 1965 119 p
(TID-3910(Suppl. 3)) CFSTI: \$2.50

This supplemental bibliography contains 1192 references related to field or laboratory studies of wild species of plants and animals with respect to radiation effects on metabolic studies involving radionuclides. Studies of laboratory strains or domestic strains are generally not included.

G.G.

N65-23724# International Union of Crystallography. Commission on Crystallographic Apparatus

LOW-TEMPERATURE X-RAY DIFFRACTION Bibliography 2

Ben Post (Polytechnic Inst. of Brooklyn) 1964 89 p

An annotated bibliography containing earlier and current literature on low-temperature X-ray diffraction techniques is presented. Emphasis has been placed on recent literature and the study of low melting crystalline solids. Among the apparatus included are an X-ray camera for powder diagrams at any temperature, a liquid helium cryostat for X-ray diffraction studies, a low-temperature apparatus for single crystal X-ray goniometers, and a method of stabilizing the specimen temperature for single crystal X-ray crystallography. Among the crystal structure investigations cited are an X-ray investigation of potassium phosphate at low temperature, X-ray studies on cetyl alcohols, the low temperature modification of N-propylammonium, and the thermal expansion of solid bromine.

S.C.W.

N65-23772 International Union of Pure and Applied Chemistry, Basle (Switzerland). Commission on High Temperatures and Refractories

BIBLIOGRAPHY ON THE HIGH TEMPERATURE CHEMISTRY AND PHYSICS OF GASES AND GAS-CONDENSED PHASE REACTIONS

L. Brewer, comp. (Calif. Univ.) 31 Mar. 1965 24 p refs

CONTENTS:

1. REACTION BETWEEN GASES AND CONDENSED PHASES p 1-18 refs

2. SPECTROSCOPY OF INTEREST TO HIGH TEMPERATURE CHEMISTRY p 19-22 refs

N65-23773# Public Health Service, Washington, D. C. Div. of Air Pollution

AIR POLLUTION PUBLICATIONS: A SELECTED BIBLIOGRAPHY, 1955-1963

Anna Grossmann-Cooper. Washington, GPO, 1964 183 p /Its Publ. No. 979, Rev. GPO: \$1.00

N65-23850# Royal Inst. of Tech., Stockholm (Sweden). Speech Transmission Lab.

SPEECH TRANSMISSION LABORATORY QUARTERLY PROGRESS AND STATUS REPORT, OCTOBER-DECEMBER 1964

J. Lindqvist et al. 15 Jan. 1965 55 p refs

(Contract DA-91-591-EUC-3413; Grants AF-EOAR-64-28; NIH NB-04003-02)
(STL-QPSR-4/1964)

N65-23857# Public Health Service, Washington, D. C. Div. of Air Pollution

SULFUR OXIDES AND OTHER SULFUR COMPOUNDS A Bibliography with Abstracts

Anna Grossmann Copper, comp. 1965 394 p refs /Its Publ. No. 1093, Bibliog. No. 56 GPO: \$2.25

An annotated bibliography of publications from 1893 to 1964 on sulfur oxides and other sulfur compounds was compiled to assist those engaged in studies of sulfur compounds in their relation to air pollution. The bibliography is arranged under 13 subjects. Among the subjects included are studies on sources of oxides of sulfur; emissions composition; atmospheric reactions involving oxides of sulfur; nature of atmospheres; human epidemiology; experimental human exposure to sulfur dioxide; industrial exposures; animal epidemiology; experimental animal exposure to sulfur dioxide; plant epidemiology and experimental exposure of plants; materials damage; visibility reduction; control devices or methods and instrumentation development; and selected publications. The following supplementary indexes are included: title index, author index, and a geographic location index of U.S. and foreign studies. S.C.W.

N65-24012# Kernforschungsanlage Juelich (West Germany). Zentralbibliothek

CHRONOLOGICAL BIBLIOGRAPHY OF MHD EXPERIMENTS WITH LIQUID METALS AND ELECTROLITES [CHRONOLOGISCHE BIBLIOGRAPHIE DER MHD-EXPERIMENTE MIT FLUSSIGEN METALLEN UND ELEKTROLYTEN]

H. A. Claassen Jun. 1964 18 p refs In GERMAN
(Jül-Bibl.-6)

N65-24262# Atomic Energy Commission, Oak Ridge, Tenn. Div. of Technical Information

RADIOACTIVE DECONTAMINATION A Literature Search

Henry D. Raleigh, comp. Apr. 1965 78 p refs
(TID-3535, Suppl. 1) CFSTI: \$3.00

Included are 336 references to unclassified publications on physical and chemical methods for the removal of radioactive contamination. The references cover the period from July 1959 through December 1964. Subject, author, and report number indexes are provided. Author

N65-24370*# National Aeronautics and Space Administration, Washington, D. C.

PROBLEMS OF ENGINEERING PSYCHOLOGY

B. F. Lomov, ed. May 1965 153 p Transl. into ENGLISH of "Probl. Inzh. Psikholonii" Presented at the 1st Leningrad Conf. on Eng. Psychology, Jun. 1964
(NASA-TT-F-312) CFSTI: HC \$5.00/MF \$1.00

An annotated bibliography of 120 papers on problems in engineering psychology is presented. Information abstracts cover research on self-organizing systems, functions of humans in control systems, characteristics of operator activities, simulation of psychic activity, reliability and accuracy of operator activities, design of operator working posts, training and selection of operators, group activity, methods of investigating human activity, reception of information by human subjects, sensorimotor processes, reactions, operative thinking, and memory. J.M.D.

N65-24420# Pennsylvania Univ., Philadelphia. Lab. for Research on the Structure of Matter

LABORATORY FOR RESEARCH ON THE STRUCTURE OF MATTER Annual Report, 1 Jul. 1963-30 Jun. 1964

John N. Hobstetter [1965] 173 p refs
(Contract ARPA SD-69)
(AR-4)

Research project reports, abstracts, publications, and other information originating from this laboratory in the fields of analytical chemistry, cryogenics, electrical microscopy, high magnetic field, magnetic resonance, materials processing, metallography, microwave spectroscopy, spectroscopy, and X-ray diffraction are presented. R.C.S.

N65-24564*# National Aeronautics and Space Administration, Marshall Space Flight Center, Huntsville, Ala.

BIBLIOGRAPHY ON THERMAL METALLIC CONTACT CONDUCTANCE

Harry Atkins 15 Apr. 1965 26 p refs
(NASA-TM-X-53227) CFSTI: HC \$2.00/MF \$0.50

In the area of heat transfer in structures, problems of heat transfer between connected members is complicated by many parameters. An attempt was made to collect all known references on this subject. This report contains references in the area of contact heat transfer measurements and theories and contact surface parameter studies. Author

N65-24632# Phillips Petroleum Co., Idaho Falls, Idaho. ANNUAL REPORT OF DIVISION ANALYTICAL BRANCH FOR 1964

Ralph C. Shank et al. Apr. 1965 213 p refs
(Contract AT(10-1)-205)
(IDO-14655) CFSTI: \$6.00

Projects of interest to analytical chemists are presented. To make the report more useful to those who submit samples, it is organized by projects rather than by analytical disciplines. Newly developed or updated analytical methods are discussed. Author

N65-24650 Polish Academy of Sciences, Warsaw. Comm. on International Cooperation in Geophysics
BULLETIN OF POLISH OBSERVATIONS OF THE ARTIFICIAL SATELLITES [BIULETYN POLSKICH OBSERWACJI SZTUCZNYCH SATELITOW]
 Ludoslaw Cichowicz et al Sep. 1964 61 p refs In POLISH; ENGLISH summary *Iz Bull. No. 11*

CONTENTS:

1. THE PROBLEMS OF ASTROMETRY, GEODESY AND SATELLITE GEOPHYSICS AT THE 5TH COSPAR SYMPOSIUM, FLORENCE, MAY 8-20, 1964 Ludoslaw Cichowicz p 1-9
2. ALPHABETIC LIST OF POLISH REPORTS ON SPACE RESEARCH Ludoslaw Cichowicz and W. Zonn p 10-28
3. RADIO SIGNALS OF THE ARTIFICIAL EARTH SATELLITES AS A SOURCE OF INFORMATION ON THE STRUCTURE OF THE UPPER IONOSPHERE Andrzej W. Wernik p 29-39 refs
4. DETERMINATION OF POSITION OF THE OPTICAL CENTER OF PLATE BY MEANS OF STELLAR OBSERVATIONS IN THE LOCAL MERIDIAN Jan Bieniewski p 40-44 refs
5. SATELLITE 1960 EPSILON 2—EVALUATION OF THE ACCURACY OF OBSERVATIONS CARRIED OUT WITH THE TELESCOPE AT-1 Michał Hajduczenia p 45-53 refs
6. LIST OF SATELLITE OBSERVATIONS PERFORMED BY THE POLISH OBSERVATION STATIONS p 54-59

N65-24651# Cambridge Univ. (England). Cavendish Lab.
CURRENT RESEARCH. REPRINT LIST AND ABSTRACTS OF RECENT PAPERS

F. P. Bowden et al 1964 19 p

Current research and abstracts of recent papers in surface physics, strength properties of solids, solid state physics, and decomposition in the solid state are reported. S.C.W.

N65-24714# Royal Inst. of Tech., Stockholm (Sweden).
LOW CYCLE STRAIN FATIGUE—A LITERATURE REVIEW COVERING NATURAL PHENOMENA AND THEORY OF RESULTS ON MATERIAL FOR SUPERHEAT FUEL CLADDING [TOJNINGSUTMATTNING, EN LITTERATURGRANSKNING AVSEENDE FENOMENETS NATUR OCH TEORI SAMT TILLAMPNING PA MATERIAL FOR OVERHETTARKAPSLING]

Torsten Ericsson 1964 109 p refs In SWEDISH; ENGLISH summary (Publ-147)

A literature study on results from isothermal low cycle strain fatigue experiments using austenitic stainless steel and nickel alloys, as well as other materials, was conducted. Low cycle fatigue after less than 10^5 cycles is expressed in the equation:

$$\Delta \epsilon_p N_F^m = C$$

where N_F is the fracture value and the plastic strain range is $\Delta \epsilon_p$. The constant C is mostly a little higher than half the fracture ductility ϵ_F of a simple tensile test. Tests performed with constant stress and constant strain amplitude contribute differently to the cycles to fracture. Grain size and the orientation of a specimen in relation to the rolling direction had little influence on the fracture value. Neutron irradiation on stainless steel simultaneously with cycling diminishes the fracture value. A compilation and comparison of low cycle strain fatigue tests of various materials are presented in tables. G.G.

N65-24842# Cornell Aeronautical Lab., Inc., Buffalo, N. Y.
BIBLIOGRAPHY OF PLASMA PHYSICS
 George P. Bein Jul. 1964 98 p refs
 (CAL-ER/RIS-3)

N65-24967# Royal Aircraft Establishment, Farnborough (England).

SONIC BANGS: A BIBLIOGRAPHY

T. I. Bell, Margaret D. Miller, and Anne E. G. Strain London, Min. of Aviation, Feb. 1965 65 p refs Supersedes RAE-LIB-BIBL-188

(RAE-LIB-BIBL-255; RAE-LIB-BIBL-188)

This annotated bibliography covers sonic boom theory and effects on structures and humans, pressure measurements from aircraft and in wind tunnels, aircraft design and operational problems, and estimation and analysis of their physical characteristics. R.N.A.

N65-24999*# National Bureau of Standards, Boulder, Colo. Cryogenics Div.

A BIBLIOGRAPHY OF EXPERIMENTAL SATURATION PROPERTIES OF THE CRYOGENIC FLUIDS

N. A. Oliin and L. A. Hall 9 Apr. 1965 121 p refs

(NASA Order R-45)

(NASA-CR-62880; NBS-TN-309) GPO: \$0.60; CFSTI: MF \$1.00

N65-25011*# National Aeronautics and Space Administration, Marshall Space Flight Center, Huntsville, Ala.

A BIBLIOGRAPHY CONCERNING ASPECTS OF THE METEOROID HAZARD

John B. Gayle, Charles C. Dalton, Henry L. Martin, William D. Murphree, and Charlotte F. Shenk 1 Apr. 1963 288 p refs

(NASA-TM-X-56505; MDWG-63-2) CFSTI: HC \$6.00/MF \$1.50

A bibliography of 876 annotated studies on the physics of hypervelocity impact and the meteoroid hazard is presented. Discussed are: *Surveys of Experimental Data; Vehicle Protection Analysis; Theoretical Studies on Hypervelocity Impact; Experimental Investigations; Experiments and Instrumentation; and Theoretical Studies on Meteoritics*. The entries were obtained from a variety of sources, and the author, title, agency, periodical, and ASTIA numbers are included. G.G.

N65-25023# Atomic Energy Commission, Oak Ridge, Tenn. Div. of Technical Information Extension

ISOTOPE TECHNIQUES IN THE BIOLOGICAL SCIENCES A Literature Search

Helen L. Ward, comp. May 1965 54 p refs

(TID-3512 (Suppl. 1)) CFSTI: \$2.00

A total of 463 selected references on new techniques and instruments for using radioisotopes are included in this bibliography. The major reference sources were *Nuclear Science Abstracts*, *The Bibliography of Agriculture*, *Biological Abstracts*, *Chemical Abstracts* and *Index Medicus*. The period covered was 1958 through 1963. Author

N65-25183# United Kingdom Atomic Energy Authority, Harwell (England). Chemistry Div.

BIBLIOGRAPHY OF UNCLASSIFIED REPORT AND PUBLISHED LITERATURE ON THE TRANSPLUTONIUM ELEMENTS (1957-1964)

R. W. Clarke, comp. Oct. 1964 98 p refs

(AERE-R-4761) HMSO: 13s

N65-25185# United Kingdom Atomic Energy Authority, Harwell (England). Chemistry Div.
BIBLIOGRAPHY OF UNCLASSIFIED REPORTS AND PUBLISHED LITERATURE ON NEPTUNIUM (1957-1964)
 R. W. Clarke, comp. Nov. 1964 56 p refs
 (AERE-R-4792) HMSO: 8s

N65-25247# Library of Congress, Washington, D. C. Aerospace Technology Div.
SCANBACK OF THE SOVIET MANNED SPACEFLIGHT PROGRAM (THE VOSHOD FLIGHTS, FUTURE PLANS, LUNAR AND MARS PROGRAMS), MAY 1964-APRIL 1965
Compilation of Abstracts
 20 Apr. 1965 153 p refs
 (ATD-P-65-19; AD-463146) CFSTI: HC \$5.00/MF \$1.00

The Scanback report is designed as a special trial service for users of WA-22 reports. It is based on a selective compilation of previously published SCAN items prepared by analysts of the S and T Section of the Aerospace Technology Division. Selected abstracts have been assembled for reference and review.
 R.W.H.

N65-25270*# Allied Research Associates, Inc., Boston, Mass
BIBLIOGRAPHY ON BIOSENSORS. A SAMPLING OF THE WORLD LITERATURE 1960-1964. VOLUME III
 J. Healer Apr. 1965 197 p refs
 (Contract NASw-535)
 (NASA-CR-63145; ARA-211-F-4, Pt. 2) CFSTI: HC \$5.00/MF \$1.50

N65-25304# International Union of Crystallography. Commission on Crystallographic Apparatus
HIGH-TEMPERATURE X-RAY DIFFRACTION TECHNIQUES, BIBLIOGRAPHY 1

H. J. Goldschmidt (B. S. A. Res. Centre) 1964 21 p
 Available from Nijia. Oosthoek's Uitgevers Mij, Utrecht: \$3.00

An annotated bibliography on high-temperature X-ray diffraction techniques is presented that is subdivided into photographic techniques, and diffractometer techniques. The order is chronological and data are given for the author, reference, and brief details. Only papers dealing with equipment and methods are included.
 G.G.

N65-25423# Army Electronics Research and Development Activity, White Sands Missile Range, N. Mex. Meteorological Support Div.
AN AUTHOR BIBLIOGRAPHY: NOCTILUCENT AND MACREOUS CLOUDS, CIRRIIFORM CLOUDS, CONDENSATION TRAILS
 Majorie Mc Lardie Hoidale Aug. 1964 97 p refs
 (ERDA-181; AD-446672)

N65-25599*# National Aeronautics and Space Administration, Washington, D. C.
LASERS AND MASERS: A CONTINUING BIBLIOGRAPHY, JANUARY 1962-FEBRUARY 1965
 May 1965 283 p refs
 (NASA-SP-7009) CFSTI: HC \$2.50/MF \$1.50 CSCL 20E

An annotated bibliography is presented which includes studies on the research and development of lasers and masers, their application to ranging and communications systems, astronomy and optics, and metalworking. Also included are studies on their physical and electronic properties, functions, and performance
 R.N.A.

N65-25929# RAND Corp., Santa Monica, Calif.
A SELECTED BIBLIOGRAPHY OF RAND PUBLICATIONS ON SPACE RESEARCH, 1960-1964 (U)

H. S. Dordick and J. T. Sturak Apr. 1965 75 p refs
 (RM-4508)

An annotated bibliography on space research is presented and includes economic and political implications of space, interplanetary flight, lunar flight, satellites, space applications, space operations, space science, and space technology. R.N.A.

N65-26074# Aspen Inst. for Humanistic Studies, Colo. Physics Div.
[A REPORT ON A SERIES OF RESEARCH CONFERENCES ON THEORETICAL PHYSICS, 8 JUN.-4 SEP. 1964]
 Robert Murray et al 1964 65 p refs
 (Contract Nonr-4460(00))
 (AD-613057)

Abstracts of research activities by participants in the conference are presented. In addition, there is a brief report on the work of the Commission on College Physics, at which conferences developed new styles and methods for the presentation of physics materials.
 M.W.R.

N65-26430# Max-Planck-Institut für Biophysik, Frankfurt am Main (West Germany).
DIRECT CONVERSION OF NUCLEAR ENERGY INTO ELECTRIC ENERGY. SERIES C: BIBLIOGRAPHIES
 AED Information Service, 1965 94 p refs Comp. by Battelle Inst., Frankfurt
 (AED-C-15-05)

A bibliography is presented on direct nuclear energy conversion into electric energy.
 R.N.A.

N65-26432# Aeronautical Research Council (Gt. Brit.)
LIST OF CURRENT PAPERS, NUMBERS 601-650
 London, HMSO, 1964 6 p refs
 (ARC-CP-650) HMSO: 1s 6d

A bibliography on current aerodynamic research papers is presented
 R N A

N65-26569# Army Missile Command, Huntsville, Ala. Redstone Scientific Information Center
A BIBLIOGRAPHY ON SOLID HYDROGEN CRYSTALLOGRAPHY
 John E. Terry 31 Mar. 1965 14 p refs
 (RSIC-393; AD-464176)

This annotated bibliography contains references on the crystal structure of solid hydrogen, deuterium and tritium. The literature indicates that most of the research on the subject has been conducted in the Soviet Union and a lesser amount of research has been conducted in Canada, Great Britain, Japan, Israel and the Netherlands. Because the literature shows ambiguities in the research findings, it is apparent that further research is required in order to determine the exact crystal structure of solid hydrogen.
 Author

N65-26955# Federal Aviation Agency, Oklahoma City, Okla. Office of Aviation Medicine
AVIATION MEDICINE TRANSLATIONS: ANNOTATED BIBLIOGRAPHY OF RECENTLY TRANSLATED MATERIAL III
 Mary Ellen Allen, William E. Collins, Jerry V. Tobias, and Ruth Ann Crain Apr. 1965 19 p refs
 (AM-65-17)

An annotated bibliography of translations of foreign-language research articles is presented. The 26 listed entries are

concerned with studies of aviation medicine, periodicity, optokinetic nystagmus, vision, vestibular function, and physical science. Procedures for obtaining copies of the translations are included. Author

N65-26989# Army Missile Command, Huntsville, Ala. Redstone Scientific Information Center
SILICON CARBIDE FOR SEMICONDUCTORS
 Gus J. Caras Feb. 1965 201 p refs
 (RSIC-381; AD-464777)

This state-of-the-art survey on silicon carbide for semiconductors includes a bibliography of the most important references published as of the end of 1964. The various methods used for growing silicon carbide single crystals are reviewed, as well as their properties and devices fabricated from them. The fact that the state-of-the-art of silicon carbide semiconductors is not further advanced may be attributed to the difficulties of growing single crystals of sufficient size and purity for semiconductor applications. Of the various methods of growing silicon carbide, growth by sublimation appears to be the most successful method. There is considerable variation in the properties of silicon carbide as reported in the literature, mainly because most measurements were conducted on crystals with varying amounts and types of impurities. In the area of devices, rectifiers capable of 500°C operation and unipolar transistors exhibiting power gain at temperatures greater than 500°C have been fabricated. Other devices which have received attention include diodes, photoelectric and electroluminescent devices, and electron emission components. Author

N65-26999# Oak Ridge National Lab., Tenn. Radiation Shielding Information Center.
BIBLIOGRAPHY, SUBJECT INDEX, AND AUTHOR INDEX OF THE LITERATURE EXAMINED BY THE RADIATION SHIELDING INFORMATION CENTER
 S. K. Penny, D. K. Trubey, and M. B. Emmett Mar. 1965 561 p refs Supersedes ORNL-RSIC-2
 (ORNL-RSIC-5; ORNL-RSIC-2)

N65-27022# Argonne National Lab., Ill.
REPORTS TO THE AEC NUCLEAR CROSS SECTIONS ADVISORY GROUP
 A. B. Smith, comp. [1965] 149 p refs Meeting held at Natl. Bur. of Standards Gaithersburg Lab. and AEC, Wash., D. C., 8-9 Mar. 1965
 (WASH-1056) CFSTI: \$4.00

Recent developments, changes of emphasis, and preliminary data on nuclear cross sections are presented in brief abstracts covering the work of the laboratories relating to nuclear cross section measurements. E.E.B.

N65-27104# Air Force Cambridge Research Labs., Bedford, Mass. Terrestrial Sciences Lab.
A COMPENDIUM OF PAPERS IN THE FIELDS OF WAVE PROPAGATION AND GEOTECHNICS PREPARED AT AFCRL DURING 1963
 Owen W. Williams Dec. 1964 118 p refs /ts Spec. Rept. No. 17
 (AFCRL-64-998; AD-611268)

CONTENTS:

WAVE PROPAGATION (SEISMOLOGY)

1. THE LAYER-MATRIX METHOD IN SEISMIC WAVE PROPAGATION PROBLEMS Norman A. Haskell p 3-14
2. MECHANICAL PROPERTIES OF THE EARTH'S UPPER MANTEL Robert E. Riecker p 15-33

3. FULL FIELD SEISMIC MODELING Ker C. Thomson p 35-63 refs

4. SOME ELEMENTARY CONSIDERATIONS ON THE USE OF MULTIPLE DISCRIMINATION CRITERIA IN THE SEISMIC IDENTIFICATION OF UNDERGROUND EXPLOSIONS Norman A. Haskell p 65-75 refs

APPENDIXES

5. TECHNICAL PAPERS PUBLISHED BY PERSONNEL OF THE WAVE PROPAGATION BRANCH DURING 1963 p 77

6. TECHNICAL REPORTS PUBLISHED UNDER CONTRACT TO THE WAVE PROPAGATION BRANCH DURING 1963 p 79-81

GEOTECHNICS (GEOLOGY)

7. INTERPRETATION OF GEOLOGIC PROPERTIES OF DESERT PLAYAS FROM AERIAL PHOTOGRAPHY James T. Neal p 85-100 refs

8. PICTORIAL SECTION p 101-109

APPENDIXES

9. TECHNICAL PAPERS PUBLISHED BY PERSONNEL OF THE GEOTECHNICS BRANCH DURING 1963 p 111

10. TECHNICAL REPORTS PUBLISHED UNDER CONTRACT TO THE GEOTECHNICS BRANCH DURING 1963 p 113-114

N65-27418# Atomic Energy Information Service, Frankfurt am Main (West Germany).
ACCELERATORS. SERIES C: BIBLIOGRAPHIES
 W. Mausberg comp. Jan. 1965 109 p
 (AED-C-18-04)

N65-27489 University Coll., London (England). Dept. of Physics.
CALCULATIONS OF COLLISIONAL-RADIATIVE DECAY
 M. J. Seaton /n Smithsonian Astrophys. Obs. Formation of Spectrum Lines 17 May 1965 p 215-219 refs (See N65-27475 16-30)

A brief bibliography is given on calculations of steady state equations for collisional-radiative decay, in the case where electron collisions dominate, and in the case where atomic collisions dominate. An unsuccessful attempt to obtain an iterative solution of the line transfer problem for a ten-level atom is described. J.M.D.

N65-27630# Naval Research Lab., Washington, D. C. Library Branch.
DIRECT ENERGY CONVERSION LITERATURE ABSTRACTS Bibliography
 Jun. 1965 120 p refs
 CFSTI: \$2.50

Abstracts of unclassified literature relating to the direct conversion of energy are covered under the subjects of general information, thermoelectricity, thermionic emission, photoelectric processes, magnetohydrodynamics, electrochemical processes, energy storage and sources, and regulation and control. An author index is included. M.W.R.

N65-27664# Joint Publications Research Service, Washington, D. C.
BIBLIOGRAPHY OF SOVIET PUBLICATIONS ON ROCKET AND SATELLITE INVESTIGATIONS OF THE UPPER ATMOSPHERE AND OUTER SPACE IN 1964
 2 Jul. 1965 28 p refs Transl. into ENGLISH of the Russian bibliography of a report presented to COSPAR 8th Meeting, Buenos Aires, May 1965 "Investigations of the Upper Atmosphere and Outer Space Carried Out in the USSR in 1964" p 82-117
 (JPRS-30925; TT-65-31424)

N65-27748# Library of Congress, Washington, D. C. Aero-space Technology Div.

SOVIET LITERATURE ON LIFE SUPPORT SYSTEMS. PART A: BIOSCIENCES Surveys of Soviet-Bloc Scientific and Technical Literature

30 Dec. 1964 18 p refs Compilation of abstracts (ATD-P-64-66; AD-609827)

Selected articles from the Soviet open literature are reviewed under three general headings: space medicine and biology, space physiology, and space vehicle ecology. In the first section are included overviews of achievements in space medicine and in the natural and social sciences. Space physiology articles are concerned with: 1) effect of high temperature and insolation on mineral salt content of body fluids; 2) distribution of body water in animals under various temperatures; 3) use of synthetic compounds to increase heat resistance of the body; and 4) changes in carbohydrate metabolism under conditions of total body vibration. An article dealing with the photosynthesis of *Chlorella vulgaris* Beyer in open-tank mass culture is reviewed in the ecology section. M.W.R.

N65-27821*# National Aeronautics and Space Administration, Washington, D. C.

SPACE COMMUNICATIONS: THEORY AND APPLICATIONS. VOLUME I: MODULATION AND CHANNELS A Bibliography

Richard F. Filipowsky and Louise C. Bickford, comp. Jun. 1965 486 p (NASA-SP-7022(01), Vol. I) GPO: HC \$2.50/MF \$2.50 CSCL 17B

An annotated bibliography on modulation and channels with regard to theory and applications to space communications is presented. References are from various reports, journal articles, and books published during the period 1958-1963. Subject contents include: fundamentals and communications theory; analog, digital, sampling, pulse code, wideband, and multiplex modulation methods; distortion characteristics of communications channels; noise and disturbances in transmission channels; and comparisons of modulation methods. L.S.

N65-27866# Pennsylvania State Univ., University Park. Mineral Industries Experiment Station.

BIBLIOGRAPHY OF FUEL CELL CONTRACTS

Harry Lerner and L. G. Austin Jan. 1965 29 p refs (Contract DA-49-186-AMC-146(D)) (Rept.-8; AD-465981)

N65-27920# National Academy of Sciences—National Research Council, Washington, D. C.

RADIOCHEMISTRY OF RHODIUM

James C. Armstrong, Jr. (Florida State Univ.) and Gregory R. Choppin (Hazelton Nuclear Science Corp.) Washington, AEC, May 1965 82 p refs (NAS-NS-3008(Rev.)) CFSTI: \$1.00

This monograph is a revised and expanded version of an earlier publication. Reviews of nuclear and chemical properties of rhodium, discussions of methods of sample dissolution and of separation reactions, descriptions of counting techniques, and a compilation of radiochemical separation procedures are included. A bibliography on the separation of rhodium and general references on the inorganic and analytical chemistry of this element are also presented. The main subdivisions of the monograph are: *Isotopes of Rhodium*; *Review of the Chemistry of Rhodium*; *Separation Chemistry*; *Biological Aspects of Rhodium*; *Activation Analysis*; *Counting Techniques*; and *Collection of Detailed Radio-Chemical Procedures*. E.E.B.

N65-28181 Joint Publications Research Service, Washington, D. C.

LITERATURE ON METEOROLOGY AND HYDROLOGY FOR 1964

In its Transl. from Meteorol. i Gidrol., No. 6, 1965 2 Jul. 1965 p 44-55 refs (See N65-28175 17-20) CFSTI: \$3.00

This article presents 110 bibliographies from a Russian publication, *Meteorology and Hydrology*. The bibliographies are listed under the following sections: (1) meteorology; (2) agrometeorology; and (3) hydrology. N.E.A.

N65-28197# Army Materials Research Agency, Watertown, Mass. Materials Engineering Div.

A REPORT GUIDE TO LITERATURE IN THE FIELD OF ELECTROMAGNETIC TESTING

Robert C. Grubinskas and Charles P. Merhib Apr. 1965 94 p refs (AMRA-MS-65-03; AD-615346)

Abstracts are presented on nondestructive electromagnetic test methods for engineering materials, including magnetic materials, which use electromagnetic energy having frequencies less than those of visible light to yield information regarding the quality of material tested. R.N.A.

N65-28247# Los Alamos Scientific Lab., N. Mex.

POLARIZATION AND ELASTIC SCATTERING OF PROTONS AND NEUTRONS FROM NUCLIDES Bibliography, Jan. 1958-Dec. 1961

R. V. Winsor 28 Jun. 1965 57 p refs (Contract W-7405-ENG-36) (LA-3281-MS; UC-34) CFSTI: \$3.00

N65-28352# Technology, Inc., Dayton, Ohio.

STUDIES ON VERTEBRAL INJURIES SUSTAINED DURING AIRCREW EJECTION Final Report

Lawrence S. Higgins, Stuart A. Enfield, and Robert J. Marshall May 1965 151 p refs (Contract Nonr-4675(00)) (TI-65-041; AD-615442)

Available world literature on ejection-related vertebral injuries in aviators was thoroughly surveyed and is presented as an annotated bibliography. Basic findings of some of the principal investigators into vertebral injury are summarized. Parameters associated with the pilot, aircraft, and ejection-seat system are evaluated in the light of their trends and relative significance in contributing to ejection-caused vertebral injury. These studies led to the development of a proposed research design to determine the dynamic strength of isolated vertebrae. Preliminary research objectives are outlined. The experimental procedure and analysis techniques are set forth. A plan for sequencing and integrating the research operations is diagramed. Author

N65-28545# Lockheed Aircraft Corp., Burbank, Calif.

LASER BIBLIOGRAPHY

Edward V. Ashburn Jun. 1965 66 p refs (LR-18863)

This report consists of a bibliography of the open literature on lasers, an author index and a few notes relating to lasers. The bibliography is in four parts. A distinguishing feature of this bibliography is the classification scheme introduced in part two. The field on the study is subdivided into many topics and categories which are assigned identification numbers. These numbers are printed after each entry. In the list of categories the serial numbers of every pertinent entry appears. N.E.A.

N65-28720# California Univ., Los Angeles. Aerodynamics Lab.
AN AERODYNAMICS BIBLIOGRAPHY, SUPPLEMENT NO. 2
 Alan Powell and Louis Solomon Apr. 1965 28 p refs
 (Contract Nonr-233(62))
 (Rept.-65-3; AD-614594)

N65-28795# Library of Congress, Washington, D. C. Aero-
 space Technology Div.
SOVIET LASER BIBLIOGRAPHY: ANALYTICAL SURVEY
Surveys of Soviet-Bloc Scientific and Technical Literature
 6 May 1965 59 p refs
 (ATD-P-65-23)

A bibliography on Soviet laser research and associated fields, covering the period from January 1961 to September 1964, is presented. Twenty-seven participant facilities were involved in the reports covered, with the majority of the material distributed among eight key institutions. These are discussed in the descending order of contributions. Interfacility correlation among these eight key institutions is described, and a brief discussion of the leading scientists associated with the aforementioned institutions is included. A bibliography of the retrieved articles is divided into such subsections as gaseous lasers; lasers based on paramagnetic materials and on semiconductor materials; exotic lasers; spectroscopy of paramagnetic laser materials; and laser theory, applications, and effects.

M.R.W.

N65-28838# Mellon Inst., Pittsburgh, Pa.
NUCLEAR MAGNETIC RESONANCE Final Scientific Report
 A. A. Bothner-By 15 Mar. 1965 6 p refs
 (Contract AF 49(638)-980; Grant AF-AFOSR-199-63)
 (AFOSR-65-0579; AD-615438)

A chronological bibliography is given of publications on nuclear magnetic resonance having appeared or anticipated. Research is summarized on the use of nuclear magnetic resonance spectra in chemical analysis. Work on spin-spin coupling constants, conformational studies, and magnetic anisotropy is summarized.

Author

N65-28849*# National Aeronautics and Space Administration,
 Washington, D. C.
PLANETARY ATMOSPHERES A Continuing Bibliography,
Jan. 1962-Feb. 1965
 Jun. 1965 144 p refs
 (NASA-SP-7017) CFSTI: MF \$1.50 CSCI 03B

A selection of annotated references to unclassified reports and journal articles on planetary atmospheres announced in *Technical Publications Announcements* (TPA), *Scientific and Technical Aerospace Reports* (STAR), and in *International Aerospace Abstracts* (IAA) is presented. Each entry in the bibliography consists of a citation and abstract. The majority of the references pertain to studies, measurements and discussions concerning the atmospheres of Mars, Venus and Jupiter, but a limited number of references to the atmospheres of Mercury and Saturn are also included. The scope of coverage was defined to permit inclusion of references to such specific topics as the theory of planetary origins, extraterrestrial environment, planetary exploration and spacecraft reentry, and the physical properties of the planets. All reports and articles cited were introduced into the NASA Information System during the period January, 1962 to February, 1965.

J.L.D.

N65-28914# Atomic Energy Information Service, Frankfurt
 am Main (West Germany).
AED INFORMATION SERVICE: SERIES C: BIBLIOGRAPHIES. SECTION 23: HIGH ENERGY PHYSICS, NO. 03
 K. Mellentin and I. Vierk, comp. Oct. 1964 133 p refs
 (AED-C-23-03)

N65-29012# Los Alamos Scientific Lab., N. Mex.
ATMOSPHERIC OZONE TO 40 Km: ITS CONCENTRATION, DISTRIBUTION, METHODS OF DETECTION, AND RELATIONSHIP WITH OTHER METEOROLOGICAL PHENOMENA Bibliography
 Betty S. Jackson 15 Jul. 1965 36 p
 (Contract W-7405-ENG-36)
 (LA-3328-MS) CFSTI: \$2.00

N65-29019# Alaska Univ., College. Geophysical Inst.
BIBLIOGRAPHY OF PUBLICATIONS: SUPPLEMENT 1
 Apr. 1965 11 p

N65-29058# Atomic Energy Commission, Oak Ridge, Tenn.
 Div. of Technical Information Extension.
BISMUTH, LEAD, AND TIN TELLURIDES A Literature Search
 Sidney F. Lanier, comp. Jun. 1965 53 p refs
 (TID-3583) CFSTI: \$3.00

N65-29059# National Bureau of Standards, Boulder, Colo.
 Central Radio Propagation Lab.
BIBLIOGRAPHY ON TROPOSPHERIC PROPAGATION OF RADIO WAVES

Wilhelm Nupen 1 Apr. 1965 346 p refs
 (NBS-TN-304) GPO: \$2.00

Over a thousand abstracts or titles taken from the literature published between 1945 and 1964 are presented. The subject matter is confined to the effects of the earth's atmosphere on radiofrequency from 10 cps to 100,000 Mc. The material is given under the following headings: *General Works; Theories, Formulas, and Models; Atmospheric Structure and Characteristics; Physico-Chemical Factors and Processes; Wave Characteristics; Radio Communication; Instruments, Equipment, and Design Considerations; and Techniques and Methods, Theoretical and Applied.*

E.E.B.

N65-29125# Air Force Systems Command, Wright-Patterson
 AFB, Ohio. Foreign Technology Div.
CYBERNETICS, AUTOMATION, AND TELEMECHANICS
 28 Aug. 1964 557 p refs Transl. into ENGLISH of the book
 "Kibernetika, Avtomatika i Telemekhanika" Moscow, Izd. Akad.
 Nauk SSSR, 1962 p 1-356
 (FTD-MT-63-191; AD-608446)

An annotated bibliography is presented on cybernetics, automation, and telemekhanics. Included are literature on automatic regulation and control, the theory of relay mechanisms and finite automatic machines, computer technology, automatic checking, automated electric drive, automatic and telemekhanic mechanisms, industrial electronics, instrument making, system and component reliability, economic effectiveness of automation, power engineering, mechanical engineering, machine building industry, metallurgy, mining, petroleum and gas industry, chemical industry, food industry, light manufacturing, building, agriculture, transportation, communications, commerce, public economy, scientific investigations, medicine, motion picture industry, and machine computing stations.

R.N.A.

N65-29194# Library of Congress, Washington, D. C. Aero-
 space Technology Div.
COMPUTER TECHNOLOGY Surveys of Soviet-Bloc Scientific and Technical Literature
 13 Jul. 1965 48 p refs Compilation of Abstracts
 (ATD-P-65-50; AD-466287)

A compilation of abstracts on Soviet computer technology is presented. Areas considered are components, design, applications, and associated systems; a bibliography is also included.

C.T.C.

N65-29215# Atomic Energy Information Service, Frankfurt am Main (West Germany).

DIRECT CONVERSION OF NUCLEAR ENERGY INTO ELECTRIC ENERGY

Jan. 1965 43 p refs In ENGLISH and GERMAN /*its Ser. C: Bibliographies: Section 15, No. 6*
(AED-C-15-06)

A bibliography is presented of subjects closely associated with the direct conversion of nuclear energy into electric energy. Magnetic triodes, thermoelectric generators, reactors, magnetohydrodynamic generators, photogenerators, thermionic converters, solar conversion, thermophotovoltaic converters, and associated technology are included. E.E.B.

N65-29509# National Academy of Sciences—National Research Council, Washington, D. C. Space Science Board.

UNITED STATES SPACE SCIENCE PROGRAM

1965 316 p refs Submitted to the 8th Meeting of COSPAR, Buenos Aires, May 1965

CONTENTS:

1. ASTRONOMY p 1-9
2. SOLAR PHYSICS p 10-23
3. ENERGETIC PARTICLES AND FIELDS p 24-31
4. ADVANCES IN PARTICLES AND FIELD RESEARCH IN THE SATELLITE ERA W. Hess, G. Mead, and M. P. Nakada 60 p refs (See N65-29510 18-29)
5. IONOSPHERIC PHYSICS p 32-48
6. PLANETARY ATMOSPHERES AND METEOROLOGY p 49-85
7. PLANETOLOGY p 86-115
8. LIFE SCIENCES p 116-123
9. CELESTIAL MECHANICS, TRACKING, TRAJECTORY STUDIES, GEODESY, AND GRAVITY p 124-139
10. LABORATORY ASTROPHYSICS AND OTHER SUPPORTING STUDIES p 140-148
11. INTERNATIONAL ACTIVITIES p 149-166

APPENDIXES

12. SUMMARY OF LAUNCHINGS FOR 1964: SATELLITES, ROCKETS, AND BALLOONS p 168-181
13. COMMUNICATIONS SATELLITES p 182-183
14. SELECT LISTS OF RESEARCH PROJECTS AND ASSOCIATED SUPPORTING AGENCIES p 184-197
15. IGY ROCKET AND SATELLITE REPORT SERIES p 198
16. JOURNALS IN WHICH U. S. SPACE SCIENCE RESEARCH REPORTS ARE NORMALLY PUBLISHED p 199
17. BIBLIOGRAPHY ON SPACE SCIENCES 152 p (See N65-29511 18-30)

N65-29511 National Academy of Sciences—National Research Council, Washington, D. C.

BIBLIOGRAPHY ON SPACE SCIENCES, 1964

In *its* U. S. Space Sci. Program, 1965 152 p (See N65-29509 18-30)

A bibliography of space science literature published in the United States during 1964 is listed under 12 headings and a general category. Subject categories include celestial mechanics, trajectory studies, gravity, and geodesy; tracking, telemetry, and space communications; instrumentation and techniques; interaction between space vehicle and medium; atmospheric composition and structure; ionospheric physics; energetic particles and magnetic fields; meteorites, cosmic dust, and tektites; the sun; the moon and planets; astronomy; and the life sciences. M.W.R.

N65-29648# National Aeronautics and Space Administration, Washington, D. C.

AEROSPACE MEDICINE AND BIOLOGY A Continuing Bibliography

May 1965 163 p refs

(NASA-SP-7011(11)) CFSTI: HC \$1.00/MF \$1.00 CSDL 06S

Annotated references are presented, which concentrate on the biological, physiological, psychological, and environmental effects to which man is subjected during and following simulated or actual flight in the earth's atmosphere or in interplanetary space. References to articles describing similar effects on biological organisms of lower order are also included. Related topics such as sanitary problems, pharmacology, toxicology, safety and survival, life support systems, exobiology, and personnel factors receive appropriate attention. Emphasis is placed on applied research, but references to fundamental studies and theoretical principles related to experimental development are also listed. C.T.C.

N65-29689# Los Alamos Scientific Lab., N. Mex.

BIBLIOGRAPHY OF CROSS SECTION AND SCATTERING DATA FOR THE REACTIONS D + D AND T + D

R. V. Winsor 7 Jul. 1965 16 p refs

(Contract W-7405-ENG-36)

(LA-3322-MS) CFSTI: \$1.00

N65-29703# Library of Congress, Washington, D. C. Aerospace Technology Div.

AEROSPACE INSTRUMENTATION Surveys of Soviet-Bloc Scientific and Technical Literature

13 Jul. 1965 68 p refs Compilation of Abstracts

(ATD-P-65-49; AD-466884)

This report is the first in a series reviewing Soviet developments in aerospace instrumentation. Abstracts contained in the report were selected from Soviet open literature published in 1964. The 78 abstracts are arranged alphabetically by author within each of the following categories: magnetometers, gravity gradient meters, gas composition analysis, micrometeorite detection, cosmic and corpuscular radiation detection, electromagnetic radiation detection, and pressure sensors. A bibliography is presented at the end of the report. N.E.A.

N65-29825# National Bureau of Standards, Washington, D. C.

BIBLIOGRAPHY ON THE MEASUREMENT OF BULK RESISTIVITY OF SEMICONDUCTOR MATERIALS FOR ELECTRON DEVICES

Judson C. French 21 Oct. 1964 123 p refs

(ARPA Order 373-62)

(NBS-TN-232) GPO: \$0.60

An annotated bibliography is presented on accurate measurements of the bulk resistivity of semiconductor materials such as germanium and silicon which are used in electron devices. Articles are included on ac and dc methods requiring probes or other contacts, ac contactless methods, microwave methods, epitaxial and diffused layer resistivity measurement, resistivity measurements at resistivities of 100 ohm-cm or greater, material properties, sample inhomogeneities and anisotropies, sample preparation and associated techniques, miscellaneous equipment and techniques, correction factors, mathematical principles, and error analysis. R.N.A.

N65-29841# Emmanuel Coll., Boston, Mass. Research Language Center.

TRANSLATED TABLES OF CONTENTS OF CH'I-HSIANG HSUEH-PAO (ACTA METEOROLOGICA SINICA)

Bedford, Mass., AFCRL, Jun. 1964 15 p Transl. into ENGLISH from Acta Met. Sinica (Peking), v. 34, no. 1, 1964 (Contract AF 19(628)-3869) (E-TC-CH-64-25; AD-615956)

Abstracts are presented on meteorology and associated subjects to include atmospheric, dynamics, instabilities, spectral analysis, heat balances, ice formation, radiation, ionization, winds, and circulation in the upper troposphere. E.E.B.

N65-29845* # National Aeronautics and Space Administration, Washington, D. C.
LUBRICATION, CORROSION AND WEAR A Continuing Bibliography, Jan. 1962-Mar. 1965
[1965] 167 p refs
(NASA-SP-7020) CFSTI: HC \$1.75/MF \$1.00 CSCL 11H

An annotated bibliography is presented on lubrication, corrosion, and wear. Included are topics such as lubricating systems, design and performance of bearings, special applications of lubricants, stress corrosion and fatigue cracking in metals and alloys, friction and wear characteristics of materials, and types of corrosion and techniques for corrosion prevention. A few references describing the instrumentation and methods of testing lubricants are also included. R.N.A.

N65-29846* # National Aeronautics and Space Administration, Washington, D. C.
SPACE COMMUNICATIONS: THEORY AND APPLICATIONS. VOL. 2: CODING AND DETECTION THEORY Bibliography, 1958-1963
Richard F. Filipowsky and Louise C. Bickford, comp. Jun. 1965 426 p refs
(NASA-SP-7022(02)) GPO: \$2.25; CFSTI: MF \$2.25 CSCL 17B

An annotated bibliography is presented on coding and detection theory for space communications. Literature is included on the fundamentals of coding, fundamentals of information compression and discrete data compaction, audio and video compression, multiplexing of channels and facilities, protective coding, detection theory, and controlled communications systems. R.N.A.

N65-29865 # Defense Documentation Center, Alexandria, Va.
PARACHUTE TECHNOLOGY A Report Bibliography
Samuel A. Tancredi, comp. Jan. 1964 106 p refs
(AD-427014)

An annotated bibliography is presented on parachute technology and includes subject material pertaining to aerial delivery, canopies, materials, parachute types, recovery systems, physical effects, and testing. R.N.A.

N65-30007 # Thornthwaite (C. W.) Associates, Centerton, N. J. Lab. of Climatology.
RECENT DEVELOPMENTS IN METEOROLOGICAL SENSORS AND MEASURING TECHNIQUES TO 150,000 FEET. PART II: BIBLIOGRAPHY Final Report
John R. Mather, ed. 30 Apr. 1965 197 p refs
(Contract DA-28-043-AMC-00001(E))
(AD-616396)

A survey was made of recent developments in meteorological sensors and measuring techniques from the surface up to an altitude of 150,000 feet. The results are presented as an annotated bibliography of 698 items, plus an analysis of the current status and of promising developments. Modes of atmospheric parameters covered are: temperature, pressure, humidity, wind, density, radiation flux (solar and terrestrial), and ozone concentration. Author

N65-30172 # Commissariat a l'Energie Atomique, Saclay (France).

ACTIVATION ANALYSIS WITH PARTICLE ACCELERATORS [L'ANALYSE PAR ACTIVATION AUPRES DES ACCELERATEURS DE PARTICULES] Bibliography

Micheline Berton Dec. 1964 61 p refs In FRENCH and ENGLISH (CEA-BIB-50)

N65-30444 # Army Nuclear Defense Lab., Edgewood Arsenal, Md.

A LISTING OF CINDA, AN INDEX TO THE LITERATURE ON MICROSCOPIC NEUTRON DATA

Herbert Goldstein (Columbia Univ.) and Malvin H. Kalos (New York Univ. and United Nucl. Corp.) 1 Jul. 1964 792 p
(UNC-5090; NDL-SP-10; DASA-1535; AD-607668)

A bibliographical index of information is presented concerning microscopic neutron cross sections and allied data for specific elements and isotopes and referred to as CINDA (Computer Index Neutron Data). Both published and unpublished literature since the beginning of 1956 is covered. The references are mostly concerned with neutron cross section measurements but also included are theoretical calculations, cross section evaluations, and compilation insofar as they refer to specific target nuclei. R.N.A.

N65-30530 # Library of Congress, Washington, D. C. Aerospace Technology Div.
MIXING OF CONCENTRIC HIGH-VELOCITY AIRSTREAMS Surveys of Soviet-Bloc Scientific and Technical Literature, Jan.-Oct. 1964
12 Jul. 1965 52 p refs Compilation of Abstracts
(ATD-P-65-41; AD-466193)

A compilation of abstracts is presented on the mixing of concentric high-velocity airstreams. Among the topics included are reports on: (1) effect of the initial mass flow rate on the development of a submerged, nonisothermal, annular jet in an incompressible fluid; (2) calculation of the main section of an axisymmetric turbulent jet of a real gas; (3) flame stabilization with countercurrent jets; (4) stagnation temperature of a two-phase turbulent jet in a high-velocity gas stream; (5) numerical calculation of turbulent mixing of two homogeneous gas streams; and (6) calculation of trajectories and penetration ranges of fan and twin plane jets in a confined transverse flow. Graphical results are given for each study. C.T.C.

N65-30598 # Johann-Wolfgang-Goethe-Universitat, Frankfurt am Main (West Germany). Institut für Kernphysik.
INSTRUMENTS AND MEASURING TECHNIQUES IN NUCLEAR PHYSICS Bibliographies
K. Debertin, comp. May 1964 98 p /ts Ser. C; Sect. 06
(AED-C-D6-10)

N65-30652 # Oak Ridge National Lab., Tenn. Atomic and Molecular Processes Information Center.
BIBLIOGRAPHY OF ATOMIC AND MOLECULAR PROCESSES FOR 1963

E. W. McDaniel, (Georgia Inst. of Tech.) C. F. Barnett, J. A. Ray, and J. C. Thompson comp. Jul. 1965 32 p refs
(Contract W-7405-ENG-26)
(ORN-AMPIC-1)

An annotated bibliography is presented on atomic and molecular processes. References are included on heavy particle-heavy particle interactions, interactions of electric and magnetic fields, particle penetration in matter, surface interactions

and phenomena, electron-heavy particle interactions, properties of atomic and molecular systems transport phenomena in gases, photon-heavy particle interactions, general theory, experimental techniques and considerations, data compilations, positronium and muonium, reviews and books in the field of atomic and molecular collisions, and bibliographies on atomic collisions.
R.N.A.

N65-30943# Lockheed Missiles and Space Co., Sunnyvale, Calif.

DEEP SUBMERGENCE STUDIES: AN ANNOTATED BIBLIOGRAPHY

George R. Evans and Charlie M. Pierce, ed. Jul. 1965 245 p refs
(LMSC-6-62-65-2/SRB-65-2)

An annotated bibliography containing 440 entries pertaining to deep submergence studies is presented. Considered are the following topics: *Structures*—vehicle design, analytical studies, and experimental studies; *Materials*—structural, and nonstructural; *Propulsion*—conventional, nuclear, and advanced and exotic concepts; *Stability and Control*; and *Environment*—internal, and external. A source and agency index is attached.
G.G.

N65-30951*# National Aeronautics and Space Administration, Washington, D. C.

AEROSPACE MEDICINE AND BIOLOGY A Continuing Bibliography

Jul. 1965 135 p
(NASA-SP-7011(13)) CSCL 06E

N65-31048*# Jet Propulsion Lab., Calif. Inst. of Tech., Pasadena.

BIBLIOGRAPHIES OF THE JET PROPULSION LABORATORY, NUMBERS 39-1 THROUGH 39-5 Cumulative Bibliographic Index No. 41-1, Jan. 1938-Jun. 1964

15 Jul. 1965 79 p
(Contract NAS7-100)
(NASA-CR-63654) CFSTI: HC \$3.00/MF \$0.75 CSCL 05B

N65-31096# Witwatersrand Univ., Johannesburg (South Africa). Dept. of Mechanical Engineering.

FLAME PROPAGATION VELOCITY AND SOME RELATED TOPICS—A BIBLIOGRAPHY

Rhona Smith, comp. Mar. 1965 124 p refs
(Rept.-28)

A bibliography on flame propagation velocity is presented. Literature on related topics necessary in the understanding and determination of this parameter is included. The primary source used in compiling the bibliography was the Engineering Index
E.E.B.

N65-31097# Library of Congress, Washington, D. C. Aerospace Technology Div.

TRACKING OF MISSILES AND SPACE VEHICLES Surveys of Soviet-Bloc Scientific and Technical Literature

22 Jul. 1965 77 p refs /ts Rept. No. 23 Compilation of abstracts
(ATD-P-65-40)

Abstracts are presented on ion clouds and ionosphere perturbations; reflections of electromagnetic waves from the Moon, Sun, planets, and artificial satellites; and radio astronomy (radio emission, antennas, and quantum molecular oscillators). The abstracts cover materials contained in Soviet open literature published during the first ten months of 1964.
E.E.B.

N65-31135*# National Aeronautics and Space Administration, Washington, D. C.

INDEX TO NASA TECH BRIEFS, ISSUE NUMBER 2

Aug. 1965 45 p refs
(NASA-SP-5021(01)) CFSTI: HC \$1.00/MF \$0.50 CSCL 05B

Presented is a publication which was prepared as a guide to technological innovations derived from the NASA space program. Included is a listing of the citations and abstracts of all NASA Tech Briefs published since January 1, 1965, covering subjects under the headings of electronics, energy sources, materials, life sciences, and mechanics.
S.C.W.

N65-31136*# International Business Machines Corp., Rockville, Md. Federal Systems Div.

SPACE COMMUNICATIONS: THEORY AND APPLICATIONS. VOLUME 3: INFORMATION PROCESSING AND ADVANCED TECHNIQUES A Bibliography, 1958-1963

Richard F. Filipowsky and Louise C. Bickford, comp. Washington, NASA, Jul. 1965 463 p refs
(Contract NASw-981)

(NASA-SP-7022(03)) GPO: HC \$2.50; CFSTI: MF \$2.25 CSCL 17B

An annotated bibliography is presented on information processing and advanced communications techniques as part of a four volume bibliography on the theory and applications of space communications. References are included on data processing systems in general; the theory, organization, and operation of computer systems; the engineering of data processing equipment; peripheral devices for data processing in space systems; digital processing methods; analog and hybrid processing methods; simulation by information processing; ground based information processing equipment; information processors in aerospace vehicles; ultra-microwave techniques; optical devices; optical communications systems; potential future communications techniques, and bionics.
R.N.A.

N65-31149# Mound Lab., Miamisburg, Ohio.

PENTAERYTHRITOL TETRANITRATE Bibliography

M. R. Kantz 30 Jul. 1965 22 p
(Contract AT(33-1)-GEN-53)
(MLM-1252) Available from AEC, Oak Ridge, Tenn.: \$0.50

N65-31374 Chicago Univ., Ill. Dept. of the Geophysical Sciences.

THE LAND AND SEA BREEZE: AN ANNOTATED BIBLIOGRAPHY

Gisela L. Baralt and Rodger A. Brown /n its Mesometeorological Field Studies Feb. 1965 62 p refs (See N65-31369 20-20)

An annotated bibliography is presented on the land and sea breeze. The earlier papers deal with observation or qualitative theory while the more recent deal with the quantitative aspects of land and sea breeze theory. Theoretical studies in the past ten years have employed computers to handle the detailed observations. In addition to pure breeze studies, many papers emphasize factors related to the land and sea breeze. Others stress the therapeutic values of land and sea circulations and their role in forest fire control around coastal regions. Also included are studies on gravity waves, refractive index anomalies, electrical potential gradient and ionization of the air, and ground radiation balance associated with sea breezes.
R.N.A.

N65-31634# Air Force Systems Command, Wright-Patterson AFB, Ohio. Air Force Materials Lab.

INVESTIGATION OF BASIC FACTORS INVOLVED IN THE FORMULATION AND CHARACTERIZATION OF ALUMINUM COMPLEX IMIDO ACIDS AS HIGH TEMPERATURE GREASE THICKENERS

Ernest L. Plummer Oct. 1964 28 p refs
(AFML-TR-64-324; AD-610248)

This report covers recent studies of aluminum salts of substituted benzoic acids for use as high temperature grease thickeners. It has been shown that although aluminum tri-benzoate can be prepared by the reaction of aluminum isopropoxide with benzoic acid, it is hydrolytically unstable and, on exposure to moisture, hydrolyzes to aluminum dibenzoate monohydroxide. A literature survey on aluminum salts is included in addition to infrared and thermal gravimetric analysis data on the aluminum salts which have been prepared. Author

N65-31682# General Electric Co., Philadelphia, Pa. Space Sciences Lab.

FUNDAMENTALS OF MHD FLOW Final Report

Arthur Sherman Jun. 1964 14 p refs
(Contract AF 49(638)-914)
(AFOSR-64-1425; AD-617562)

Various studies on magnetohydrodynamic phenomena associated with crossed field devices are reviewed. These included investigations of the properties of low temperature plasmas; analyses of channel flow problems; discussions of related boundary layer phenomena; and the application of channel flow solutions to accelerators and generators. The development of some new concepts for the macroscopic description of the nonequilibrium ionization idea was also reported. C.T.C.

N65-31929# Battelle Memorial Inst., Columbus, Ohio. Transducer Information Center.

COMPILATION OF TRANSDUCER RESEARCH, DEVELOPMENT AND TESTING CONTRACTS

15 Apr. 1965 22 p
(Contract AF 33(615)-1819)

This addendum to a previous contract compilation lists 47 current and recently completed contracts and projects. The compilation was prepared to provide users and manufacturers of transducers and those managing or planning transducer research programs with a comprehensive source of information about other organizations and individuals engaged in similar activities. E.E.B.

N65-32187*# International Business Machines Corp., Rockville, Md. Federal Systems Div.

SPACE COMMUNICATIONS THEORY AND APPLICATIONS. VOLUME 4: SATELLITE AND DEEP SPACE APPLICATIONS A Bibliography

Richard F. Filipowsky and Louise C. Bickford, comp. Washington, NASA, Jul. 1965 303 p refs
(Contract NASw-981)
(NASA-SP-7022(04), Vol. 4) GPO: HC \$1.75; CFSTI: MF \$1.75
CSCL 17B

An annotated bibliography is presented covering communications satellites, instrumented satellites, deep space flight, and manned space flight with emphasis on the communications equipment and technology. The references relate to publications of a predominantly systems character. Hardware oriented publications have been, to a large degree, excluded to keep the bibliography within specified limits. E.E.B.

N65-32205# Library of Congress, Washington, D. C. Aerospace Technology Div.

SOVIET AIRCRAFT CIRCUIT BREAKERS. ANNOTATED BIBLIOGRAPHY Surveys of Soviet-Bloc Scientific and Technical Literature

22 Jul. 1965 25 p refs
(ATD-B-65-54; AD-618471)

An annotated bibliography is presented on Soviet aircraft circuit breakers. Articles dealing with relays and contactors, which are used alone or in combination to perform circuit breaker operations, and devices such as generator control boxes and storage battery switching boxes, which are used as components with circuit breakers, are included. Available technical characteristics of the contactors, thermal circuit breakers, relays, and control boxes cited in the bibliography are tabulated in the appendix. R.N.A.

N65-32210# Aeronautical Research Labs., Wright-Patterson AFB, Ohio.

A BIBLIOGRAPHY ON MOVING STRIATIONS

R. S. Palmer and A. Garscadden Jun. 1965 35 p refs
(ARL-65-120; AD-619027)

N65-32226# Library of Congress, Washington, D. C. Aerospace Technology Div.

METHODS OF HIGH-TEMPERATURE MEASUREMENT OF GASES Surveys of Soviet-Bloc Scientific and Technical Literature, Report No. 3

22 Jul. 1965 17 p refs Compilation of Abstracts
(ATD-P-65-53; AD-618532)

Presented is an annotated bibliography on methods used in the high temperature measurement of gases which appeared in Soviet-bloc open literature between 1958 and 1965, and a list of articles available in full translation. S.C.W.

N65-32339# California Univ., Berkeley. Lawrence Radiation Lab.

RADIATION EFFECTS ON NOBLE METALS Bibliography

Brigitta M. Dobratz 14 Apr. 1964 18 p
(Contract W-7405-ENG-48)
(UCRL-7810)

N65-32378# International Union of Pure and Applied Chemistry, Basle (Switzerland). Sub-Commission on Condensed States.

BIBLIOGRAPHY ON THE HIGH TEMPERATURE CHEMISTRY AND PHYSICS OF MATERIALS IN THE CONDENSED STATE, APRIL, MAY, JUNE 1965, VOLUME 1965, NUMBER 2

J. J. Diamond, ed. (Natl. Bur. of Std., Washington) [1965]
66 p refs

N65-32393# Gt. Brit. Dept. of Scientific and Industrial Research.

WORLD DATA CENTRE C: ROCKETS AND SATELLITES. LIST OF REPORTS AND REPRINTS RECEIVED DURING THE PERIOD 1 JANUARY-30 JUNE 1965

[1965] 20 p refs

A bibliography containing approximately 250 titles, concerning recent space research is presented. The reports pertain to satellite probes, orbits and flight paths, tracking, data recovery, instrumentation, interplanetary probes, gravitational fields, magnetic fields, terrestrial and space radiation, atmospheric properties, radiowave propagation, meteors and meteorites, interplanetary dust and tektites, biological and medical problems, astronomy, and plasma physics. J.M.D.

N65-32692# Army Materials Research Agency, Watertown, Mass. Materials Technology Div.

A REPORT GUIDE TO MAGNETIC PARTICLE TESTING LITERATURE

Ernest H. Rodgers and Charles P. Merhib Jun. 1965 80 p refs
(AMRA-MS-65-04; AD-617758)

An annotated bibliography of magnetic particle testing literature is reported. The primary objective of this compilation is to provide a simple and fast access to information on the subject of magnetic particle testing, and to provide sufficient information in the form of abstracts and word descriptors to make the listing useful. Also included is an author index. Among the research presented are: nondestructive testing studies of hardware for solid rocket motors, a new method of obtaining magnaflex patterns and their permanent records, and an analysis of trends in nondestructive testing. S.C.W.

N65-32709# Library of Congress, Washington, D. C. Aerospace Technology Div.

CBE FACTORS Surveys of Soviet-Bloc Scientific and Technical Literature

16 Jul. 1965 77 p refs
(ATD-B-65-43; AD-618467)

A bibliography of Soviet open source literature in the categories of aerosols, biological pathogens, and chemical substances is presented. Abstracts are included for most of the articles, all of which were published prior to 31 December 1962. M.W.R.

N65-32763# International Union of Pure and Applied Chemistry, Basle (Switzerland). Sub-Commission on Gases.

BIBLIOGRAPHY ON THE HIGH TEMPERATURE CHEMISTRY AND PHYSICS OF GASES AND GAS-CONDENSED PHASE REACTIONS, NO. 15

L. Brewer (Calif. Univ.) 30 Jun. 1965 28 p refs

The bibliography lists 107 publications pertaining to the spectroscopy of interest to high temperature chemistry; and 144 publications of studies on the reaction between gases and condensed phases. G.G.

N65-32876*# National Aeronautics and Space Administration, Washington, D. C.

ABSTRACTS OF FIVE BIOMEDICAL PAPERS ON RESULTS OF SOVIET MANNED SPACE FLIGHTS

I. T. Akulinichev et al Aug. 1965 14 p Transl. into ENGLISH from Russian 14 p

(NASA-TT-F-9536) CFSTI: HC \$1.00/MF \$0.50 CSCL05J

Papers dealing with cosmonaut work capacity, physical reactions of man to acceleration during space flight, and noise normalization in life support systems in spacecraft cabins during prolonged flight are summarized. Results of some electrophysiological investigations conducted on the Voshkod I spacecraft are abstracted as are findings of a study of *Chlorella* cultures as a link in an ecosystem. M.W.R.

N65-33094 Chicago Univ., Ill. Cloud Physics Lab.

AERIAL OBSERVATIONS OF RAIN AND SNOW CLOUDS
Selected Bibliography

Roscoe R. Braham, Jr. In *its* [Cloud Phys.] 1 Jun. 1965 28 p refs (See N65-33092 21-13)

A selected bibliography is presented on aerial observations of rain and snow clouds. References are included on cloud microstructure, precipitation particles, liquid water content, air temperature, water vapor content, air motions, electrical parameters, cumulus clouds, layer clouds, clean air, weather systems, cloud climatology, aircraft icing, precipitation, dynamical models, aerosols, and symposia and general texts. R.N.A.

N65-33107 Committee on Space Research (COSPAR), The Hague (Netherlands).

A GUIDE TO THE LITERATURE ON THE FALLING SPHERE METHOD FOR MEASURING UPPER-AIR DENSITY, TEMPERATURE AND WIND

L. M. Jones, comp. In *its* Sounding Rocket Res. Tech. 1964 p 33-41 refs (See N65-33105 21-13) CFSTI: HC \$5.00/MF \$1.00

A selected annotated bibliography is presented on the falling sphere technique for measuring upper atmosphere density, temperature, and wind. The documents were selected to emphasize technique rather than results and thus constitute a manual of how to perform aeronautical measurements with spheres. R.N.A.

N65-33147*# Jet Propulsion Lab., Calif. Inst. of Tech., Pasadena.

BIBLIOGRAPHIES OF THE JET PROPULSION LABORATORY NO. 39-1 THROUGH 39-5 Cumulative Bibliographic Index No. 41 1

15 Jul. 1965 79 p refs

(Contract NAS7-100)

(NASA-CR-64613) CFSTI: HC \$3.00/MF \$0.75 CSCL05B

A bibliographic index derived from various publications, memorandums, reports, technical releases, and documents on aerospace technology and related fields is presented. R.N.A.

N65-33238# Aerospace Corp., El Segundo, Calif. Administration Div.

MONTHLY SUMMARY OF TECHNICAL DOCUMENTARY REPORTS, 1-31 JANUARY 1965

H. Lemons 10 Feb. 1965 26 p

(Contract AF 04(695)-469)

(CSR-469(9990)MS-7; AD-451792)

Abstracts are presented on a number of technical aerospace reports and include tumbling experiments on a gyro, an orbit determination program, radar resolution of moving targets, a digital systems program, atmospheric density experienced by radiation belt protons, feasibility study of speed beam antennas for the defense communication satellite program, blast loading tests of conical shells, etching and crystal growth of the GaAs-Sn system, thermal diffusivity measurement technique for very high temperatures, and range rate and antenna angle data evaluation study. R.N.A.

N65-33349# Lockheed Missiles and Space Co., Sunnyvale, Calif.

GEMINI AGENA TARGET VEHICLE Reports Bibliography, 30 Jun. 1964

1 Sep. 1964 16 p

(Contract AF 04(695)-129)

(LMSC-A605144; AD-462886)

A bibliography on the Gemini Agena Target Vehicle is presented. It pertains to reports published prior to July 1964. Topics covered include communications and control systems, flight planning, human factors, various engineering manuals, presentations and briefing aids, product assurance, and propulsion system. J.M.D.

N65-33395# Naval Ordnance Lab., White Oak, Md.
UNCLASSIFIED REPORTS PUBLISHED BY THE AEROBALLISTICS AREA, 1 OCTOBER 1945-31 DECEMBER 1962

Betty M. Thompson May 1965 95 p

(NOLTR-64-222; AD-614700)

A list of all Naval Ordnance Laboratory Unclassified reports published by the Aeroballistics Area during the period 1 October 1945 through 31 December 1962 is presented. Author

N65-33499# Army Missile Command, Huntsville, Ala. Redstone Scientific Information Center.

SATELLITE ORBIT DETERMINATION, A BIBLIOGRAPHY

Dale Denham Jun. 1965 126 p refs

(RSIC-415; AD-468532)

The cited references pertain to the area of "Satellite Orbit Determination." This bibliography covers the following: (1) Methods to use and combine tracking data from radar and other tracking systems for orbit determination, and (2) The influence of tracking station location, number of stations, and time of tracking on the accuracy of orbit determination. In addition to the above, the cited references cover analysis and simulation of orbits; mathematics and parameters of orbits; theory and techniques; prediction and accuracies; programming and computers; error analysis; evaluation of ground coverage; systematic errors; airborne platforms; space dynamics; self-contained orbit determination techniques; and space-time. This bibliography consists of four sections: Section I-Introduction. Section II-Orbit Determination, Entries 1 through 161. Section III-Programs and Satellite Systems, Entries 162 through 187. Section IV-Equipment and Facilities for Orbit Determination, Earth-Based, Entries 188 through 253.

Author

N65-33675# Army Missile Command, Huntsville, Ala. Redstone Scientific Information Center.

LUNAR THERMOPHYSICS Annotated Report Bibliography

Charlotte F. Shenk, Herbert P. Eckstein, and William P. McNutt Jun. 1965 282 p

(RSIC-419; AD-469037)

This bibliography, most of which is annotated, contains 673 citations, and is conveniently arranged under 30 sections related to thermal physics of the moon. These sections are Albedo; Atmosphere-Ionosphere; Bibliographies; Books; Color; Composition; Craters, Maria and Rays; Dust; Earth Shine; Eclipse; Environment; Exploration; General Information; Infrared; Instrumentation and Equipment; Light-Optical Properties; Luminescence; Photometry; Polarimetry and Polarization; Radar and Radio Echo; Radiation, Ultraviolet and Nuclear; Radio Emission-Radio Astronomy; Radiometry; Selenology; Spectrophotometry; Spectroscopy-Spectrometry; Sputtering; Solar Wind; Tektites; Temperature; and Topography. The Radar and Radio Echo Section has 96 citations, and the Photometry, Selenology, Radio Emission-Radio Astronomy, and Temperature Sections have over 40 citations each.

Author

N65-33731# Air Force Systems Command, Wright-Patterson AFB, Ohio. Foreign Technology Div.

INTERNATIONAL POWDER METALLURGICAL CONFERENCE IN SMOLENICE

Kohlermann 25 May 1965 13 p refs Transl. into ENGLISH from Neue Hütte (Berlin), no. 3, 1963 p 187-190

(FTD-TT-65-139/1; AD-467250)

Twenty-three articles which deal with powder metallurgy are briefly described. Topics covered include: sintered high melting point compounds, the kinetics of sintering in the presence of the liquid phase, the mechanical properties of materials produced by powder metallurgy, friction materials, metal alloys as high temperature materials, the mechanical properties of hard-metal alloys, and metal-oxide sintering.

G.A.L.

N65-33830*# National Aeronautics and Space Administration, Washington, D. C.

AEROSPACE MEDICINE AND BIOLOGY—A CONTINUING BIBLIOGRAPHY, JULY 1965

Aug. 1965 143 p refs

(NASA-SP-7011(14)) CFSTI: HC \$1.00/MF \$1.00 CSCL 06E

An annotated bibliography is presented on aerospace medicine and biology. References are included on the biological, physiological, psychological, and environmental effects to

which man is subjected during and following simulated or actual flight in the earth's atmosphere or in interplanetary space; similar effects on biological organisms of lower order; and related topics such as sanitary problems, pharmacology, toxicology, safety and survival, life support systems, exobiology, and personnel factors.

R.N.A.

N65-33908# Midwest Research Inst., Kansas City, Mo. **HIGH-PRESSURE SAMPLING CONFERENCE REPORT**

Thomas A. Milne 23 Jul. 1965 36 p refs Conf. held at Midwest Res. Inst., 6-7 May 1965

(Contract Nonr-3599(00); ARPA Order 23-63)

(AD-618566)

Various problems encountered in the direct sampling of systems at high pressures were discussed. Abstracts, which indicate the range of topics covered, include *Continuum Flow Problems in Direct Sampling*; *Nonequilibrium Effects in Freely Expanding Jets*; *Mass Bias in Vacuum Sampling from High Pressure*; *Influence of Self Collisions in Supersonic Molecular Beams*; *Collisions in Molecular Beam Collimating Chambers*; *Disturbances by Sonic Sampling Probes in Flames and Other Systems*; *Free Radical Sampling from Nonequilibrium Systems*; *Some Problems of Mass Spectrometric Direct Sampling*; *Direct Sampling from a Shock Tube*; *Beam Formation and Sampling of Neutrals from One Atmosphere Flames*; *A Sampling System for Neutral Particles*; *Ion Sampling from Gaseous Plasmas*; *Ion Sampling from a Flowing Gas Stream*; and *Ion Sampling from Hydrocarbon Combustion Plasmas*.

M.G.J.

N65-33997# Autonetics, Downey, Calif.

OCCUPATIONAL LASER HAZARDS—A SURVEY OF THE LITERATURE

Marnelle Kinney 7 Jul. 1965 21 p refs

(T5-1245/3111; AD-617913)

The need for guidelines to protect personnel involved in laser research is generally recognized. The literature reveals, however, that views differ as to what precautions should be required. This bibliography contains 48 entries arranged alphabetically by author, and includes papers published in the open literature and reports which may be obtained through the Defense Documentation Center. The period of time covered is from 1956 through May 1965.

Author

N65-34072# New York Univ., N. Y. Electron Tube Group. **PROJECTS DEALING WITH ADVANCED ELECTRON DEVICE TECHNOLOGY**

Dec. 1964 52 p

(Contract DA-28-043-AMC-00039(E))

(SR-84; AD-463583)

Brief summaries are presented on the results being achieved by government agencies in the field of advanced electron device technology. Microwave, low power, high power, and passive devices, special devices, and optical masers are considered in terms of production evaluation, reliability and device techniques.

G.A.L.

N65-34142# Library of Congress, Washington, D. C. Aerospace Technology Div.

LUNAR DIMENSIONS, ANNOTATED BIBLIOGRAPHY

Surveys of Soviet-Bloc Scientific and Technical Literature 30 Jul. 1965 25 p

(ATD-B-65-60; AD-619882)

An annotated bibliography of 42 Soviet-bloc research papers on lunar dimensions is presented. It reflects developments from about 1963 in investigations of lunar revolution, rotation, libration, and mapping techniques.

G.G.

N65-34194# Library of Congress, Washington, D. C. Aerospace Technology Div.
TRACKING OF MISSILES AND SPACE VEHICLES, COMPILATION OF ABSTRACTS *Surveys of Soviet-Bloc Scientific and Technical Literature*, Nov. 1964-Mar. 1965
 14 Sep. 1965 50 p refs *Its Rept.*-24
 (ATD-P-65-51)

Abstracts of 28 Soviet papers on topics related to tracking of missiles and space vehicles are presented. The abstracts are grouped under the headings "ion clouds and ionospheric perturbations" and "radio astronomy: radio emission, antennas, and lasers and masers." A bibliography of 61 Soviet papers is included.
 J.M.D.

N65-34204# Library of Congress, Washington, D. C. Aerospace Technology Div.
BIOLOGICAL EFFECTS OF MICROWAVES *Surveys of Soviet Scientific and Technical Literature*
 17 Sep. 1965 100 p Compilation of Abstracts
 (ATD-P-65-68)

An annotated bibliography which was designed to review the historical development and to survey the contemporary state of Soviet and Soviet-Bloc research on the biological effects of microwaves, especially in the radio frequency ranges, is reported. Abstracts are based primarily on literature published during the period 1937 to 1965. Focused on were those articles concerned with the effects of microwaves on the central nervous system. Data are presented in the following areas: hygienic and clinical aspects of microwaves, experimental effects of microwaves, and the effects of a constant magnetic field and low-frequency electromagnetic yields on higher nervous activity. Included are discussions and reviews on biological effects, experimental methods, and mechanisms of the action of microwaves.
 S.C.W.

N65-34212# Argonne National Lab., Ill.
THE CHEMICAL ANALYSIS OF Pu, Pu ALLOYS, AND Pu COMPOUNDS: METHODS, TECHNIQUES, SEPARATIONS PROCEDURES, AND PHYSICAL DATA *Annotated Bibliography, 1947-Mar. 1964*
 H. B. Evans and J. O. Karttunen Oct. 1964 113 p refs
 (Contract W-31-109-ENG-38)
 (ANL-6956) CFSTI: \$4.00

An annotated bibliography which focuses primarily on analytical methodology used in the analysis of plutonium, plutonium alloys, and plutonium compounds; is reported. The scope of reported data exceeds strictly analytical procedures to provide a basis for further development of procedures for analyzing new compounds and alloys of plutonium, and new approaches to long standing problems. Literature covered includes physical chemistry, separations chemistry, physiological and criticality hazards, health and safety, glove-box construction and operation, and corrosion control.
 S.C.W.

N65-34447# Space Technology Labs., Inc., Redondo Beach, Calif.
NUCLEAR SPACE MISSIONS: A SELECTED BIBLIOGRAPHY *Special Literature Survey No. 9*
 R. R. Velin and L. R. Magnolia, comp. 7 Sep. 1965 24 p refs
 (STL-9990-6998-KU-000)

N65-34703# Battelle-Northwest, Richland, Wash.
SWIN IN BIOMEDICAL RESEARCH *Selected List of References, 1960-May 1965*
 J. C. Pekas and L. K. Bustad Jun. 1965 157 p refs
 (Contract AT(45-1)-1830)
 (BNWL-115)

N65-34839# California Inst. of Tech., Pasadena. Firestone Flight Sciences Lab.
SOLID ROCKET STRUCTURAL INTEGRITY ABSTRACTS, VOLUME 2, NO. 2
 R. A. Westmann, ed. Apr. 1965 127 p refs
 (Contract AF 04(611)-9572)
 (AD-464736)

CONTENTS:

1. A SUMMARY OF LINEAR VISCOELASTIC STRESS ANALYSIS H. H. Hilton (Ill. Univ.) p 1-56 refs (See N65-34840 23-27)

ABSTRACTS

2. MECHANICAL CHARACTERIZATION p 58-69
 3. THERMAL CHARACTERIZATION p 69-70
 4. OPTICAL CHARACTERIZATION p 70-71
 5. ANALYTICAL METHODS p 72-97
 6. FAILURE p 98-109
 7. SPECIAL TEST PROCEDURES p 109-115
 8. PHYSICO-CHEMICAL EFFECTS ON MECHANICAL BEHAVIOR p 115-116

N65-35048# North Carolina Univ., Chapel Hill.
[QUANTUM THEORY; RELATIVISTIC MECHANICS; SPINOR-TENSORS] *Joint Report, 1 Dec. 1964-31 May 1965*
 Bryce S. De Witt [1965] 13 p refs
 (Contract Nonr-855(07); Grant AF-AFOSR-153-63)
 (AD-619183)

Abstracts on quantum theory, relativistic mechanics, and spinor-tensors are presented. Abstracts are included on the inner product in the canonical quantum theory of gravity, radiation dumping in a gravitational field, classical relativistic mechanics of interacting point particles, the conceptual basis and use of the geometric invariance principles, a theorem on spinor-tensors, identities for the curvature tensors in non-Riemannian geometries, conformal and projective Riemann spaces, pedagogical methods in relativity theory, and photon bound states and gravitons.
 R.N.A.

N65-35189# Library of Congress, Washington, D. C. Aerospace Technology Div.
TRACKING OF MISSILES AND SPACE VEHICLES *Surveys of Soviet-Bloc Scientific and Technical Literature*
 14 Sep. 1965 52 p refs Compilation of abstracts
 (ATD-P-65-51)

Soviet-bloc literature dealing with ion clouds and ionic perturbations, radio emissions and antennas, and lasers and masers is reviewed in a series of abstracts. A bibliography of related articles is appended.
 M.W.R.

N65-35343# Aerospace Medical Div. Aerospace Medical Research Labs. (6570th), Wright-Patterson AFB, Ohio. Behavioral Sciences Lab.
ENGINEERING PSYCHOLOGY, TRAINING PSYCHOLOGY, ENVIRONMENTAL STRESS, SIMULATION TECHNIQUES, AND PHYSICAL ANTHROPOLOGY 1964 Supplement to a *Bibliography of Reports Issued by the Behavioral Sciences Lab.*
 Lavon E. Trygg, comp. 1 Jan. 1965 14 p refs
 (AD-464531)

A bibliography is presented on *Systems Development; Physical Anthropology; Apparatus; Control Design and Arrangement; Environmental Stress; Human Engineering; Maintenance; Methodology and Statistics; Personnel and Manning Requirements; Presentation of Information; Simulation; Tracking and Servo Analysis; Training and Learning; and Zero-G Studies.*
 E.E.B.

N65-35363# Mound Lab., Miamisburg, Ohio.
A REVIEW OF THE DISSOLUTION OF PLUTONIUM DIOXIDE
 William S. Gilman 17 Sep. 1965 14 p refs
 (Contract AT(33-1)-GEN-53)
 (MLM-1264) CFSTI: \$1.00

The presently available dissolution data for plutonium dioxide have been compiled together with a bibliography on the subject. The ease of solubility in various media is strongly dependent upon the method of preparation and temperature to which the PuO₂ was subjected during ignition. Author

N65-35409*# SPACO, Inc., Huntsville, Ala. Human Factors Lab.
ON CERTAIN AREAS OF HUMAN FACTORS A Literature Search

Charles Edward White Aug. 1964 46 p refs
 (Contract NAS8-11675)
 (NASA-CR-67336) CFSTI: HC \$2.00/MF \$0.50 CSCL 05E

An annotated bibliography is presented on human factors and includes references on man's basic characteristics, man's characteristics at an interface, man's characteristics in a group, optimization of machine characteristics to match man's characteristics, optimization of environment to match man, extracted output from man, unusual input to man, handbooks on human factors and engineering, and bibliographies. The appendices contain abstracts of works on the brain machinery, biotechnology, and color vision theory. R.N.A.

N65-35520*# National Aeronautics and Space Administration, Washington, D. C.

BALLISTOCARDIOGRAPHY, A BIBLIOGRAPHY [1877-1964]

Sep. 1965 49 p Prepared jointly with FAA
 (NASA-SP-7021; FAA-AM-65-15) GPO: \$0.35/CFSTI: MF \$0.50 CSCL 06E

N65-35561# Advisory Group for Aeronautical Research and Development, Paris (France).

AGARD INFORMATION BULLETIN

Jun. 1965 23 p
 (Rept.-65-2)

The AGARD technical program for 1966 is mentioned by subject for the various panels, and changes in membership and publications are listed for each of the panels. Technical panels include Aerospace Medical, Avionics, Combustion and Propulsion, Flight Mechanics, Fluid Dynamics, Structures and Materials, and Technical Information. Titles of lectures are given for three AGARD lecture series: (1) Space Navigation, Guidance, and Control; (2) Engineering Applications of Advanced Techniques of Random Process Analysis; and (3) Guided Missile Engineering. New AGARD publications are given in an annotated bibliography and a calendar of AGARD meetings is included. M.W.R.

N65-35939# Air Force Cambridge Research Labs., Bedford, Mass. Space Physics Lab.

A BIBLIOGRAPHY OF THE ELECTRICALLY EXPLODED CONDUCTOR PHENOMENON, SUPPLEMENT NO. 1

William G. Chace and Eleanor M. Watson Jun. 1965 42 p refs
 /ts Spec. Rept. No. 25
 (AFCL-65-384; AD-618131)

An annotated bibliography is presented on the electrically exploding conductor phenomenon. References are included on arcs, exploding wires, exploding bridge wire, light, mathematics, measurements, photography, shock waves, sparks, spectroscopy, switches, temperature, theory, X-rays, and exploding foils and films. R.N.A.

N65-36207# Grumman Aircraft Engineering Corp., Bethpage, N. Y. Grumman Research Dept.

POLARIMETRY AND THE LUNAR SURFACE A Literature Survey

W. G. Egan Apr. 1965 61 p refs
 (RM-271)

Light reflected by illuminated materials exhibits polarization, with properties dependent upon the nature of the surface and the angles of incidence and observation. This is caused by reflection, scattering, diffraction, single and double refraction, and absorption, with all processes occurring simultaneously. A survey was made of the literature on planetary polarization, with particular emphasis on that of the lunar surface, and the results are presented herein. Following a short introduction and history, a brief synopsis of polarization theory and photometric definitions is presented. A description of measuring devices ensues, with data presented on lunar observations and laboratory measurements. Particular emphasis is placed on the work of the French group (Lyot, Dollfus), but not to the exclusion of the Russian workers. The conclusion summarizes the present state of the art, and outlines areas where further investigation is required. An extensive bibliography is included. Author

N65-36214# Mound Lab., Miamisburg, Ohio.

PYROLYSIS OF POLYMERS, A BIBLIOGRAPHY

Roland W. Kohl 21 Sep. 1965 40 p refs
 (Contract AT(33-1)-GEN-53)
 (MLM-1271) CFSTI: \$2.00

N65-36351# Atomic Weapons Research Establishment, Aldermaston (England).

A REVIEW OF EVALUATIONS OF NEUTRON CROSS SECTIONS AVAILABLE AT NOVEMBER 1964

K. Parker Mar. 1965 23 p refs
 (AWRE-O-13/65) CFSTI: HC \$1.00/MF \$0.50

A survey of evaluation work by laboratories is given followed by a tabular summary of the position for each chemical element and for certain isotopes and chemical compounds. This report is a revision of EANDC(UK)26. Author

N65-36379# British Hydromechanics Research Association, Harlow (England).

REFERENCES ON OR RELATED TO STRESSES IN TURBO-MACHINE ROTORS Bibliography

Oct. 1964 13 p
 (BIB-17) CFSTI: HC \$1.00/MF \$0.50

A bibliography is presented on radial flow, side-vane impeller configurations typical of centrifugal pumps and compressors and on rotors of other turbomachinery such as gas and steam turbines. Also, a number of references to work on rotating disks is included. Seventy-two articles are represented in the bibliography of which most of the references contain brief abstracts. E.E.B.

N65-36424 North American Aviation Science Center, Thousand Oaks, Calif.

MOSSBAUER EFFECT DATA INDEX, ISSUE 3

A. H. Muir, Jr., K. J. Ando, and H. M. Coogan, comp. Jul. 1965 249 p refs

(SCTR-65-2) Available from N. Am. Aviation Sci. Center

An organized up-to-date index to published research results relating to the Mössbauer effect is presented. Although the primary emphasis is on experimental results, bibliography sections of theoretical, review, and instrumentation publications are included. Complete nuclear data and Mössbauer properties summary sheets are included for each isotope and

transition. The organization of the index to the experimental data involves three principal considerations: (1) nuclear transition; (2) source material or host; and (3) absorber (or scatterer) material or host. R.R.D.

N65-36500# Hughes Aircraft Co., Culver City, Calif. Services Div.

DIAPHRAGMS A Selected Bibliography

J. Seremak Oct 1965 14 p refs

(LS-BIB-65-1)

This selective bibliography contains 135 references on design and manufacture of metallic diaphragms including a complete search on bursting diaphragms. The bibliography covers period from 1920 to 1965, and includes unclassified reports and titles from open literature. Author

N65-36511# National Academy of Sciences—National Research Council, Washington, D. C. Materials Advisory Board.

MATERIALS ADVISORY BOARD COMMITTEE ON BERYLLIUM METALLURGY Third Progress Report, Sep. 1964—May 1965

1 Jun. 1965 24 p

(Contract ARPA SD-118)

(MAB-199-M(3))

Abstracts of papers given at a meeting of the Committee on Beryllium Metallurgy emphasizing beryllium purification and structural application are presented. Improved ductility and toughness through new processes of beryllium purification is the subject of the majority of the papers summarized. Also included is a listing of research projects on beryllium studies. G.A.L.

N65-36571# Library of Congress, Washington, D. C. Aerospace Technology Div.

RE-ENTRY COMMUNICATIONS STUDIES Surveys of Soviet Scientific and Technical Literature

George Steblez 10 Sep. 1965 55 p Compilation of abstracts (ATD-P-65-73)

An annotated bibliography is presented on Soviet developments in reentry communications. References are included on charged particle-plasma interactions; magneto-acoustic resonance; electromagnetic waves, wave scattering, and wave propagation in plasmas; electron distribution in plasmas, radiowave scattering by meteor trails, magneto-hydrodynamics, and magnetic field effects on plasmas. R.N.A.

N65-36894*# National Aeronautics and Space Administration, Washington, D. C.

AEROSPACE MEDICINE AND BIOLOGY—A CONTINUING BIBLIOGRAPHY WITH INDEXES

Sep. 1965 156 p

(NASA-SP-7011(15)) CFSTI: HC \$1.00/MF \$1.00 CSCL O6

Considerable emphasis is given to biological, physiological, psychological, and environmental effects to which man is subjected during and following simulated or actual flight in the earth's atmosphere or in interplanetary space. References describing similar or actual effects on biological organisms of lower order are also included. Such related topics as sanitary problems, pharmacology, toxicology, safety and survival, life support systems, exobiology, and personnel factors receive appropriate attention. The emphasis is placed on applied research, but references to fundamental studies and theoretical principles related to experimental development also qualify for inclusion. R.W.H.

1966

STAR ENTRIES

N66-10170# Martin Co., Orlando, Fla. Technical Information Center.

RADIO ASTRONOMY, A SELECTED BIBLIOGRAPHY

Lucille Mc Clure 22 Jun. 1965 50 p

(RB-125; AD-465566)

A selected bibliography on radio astronomy covering domestic and foreign publications is presented. The subject area includes the study of electromagnetic impulses of radio energy emitted by celestial bodies and regions, as well as the study of the universe by using radio waves instead of visible light frequencies. R.R.D.

N66-10316*# National Aeronautics and Space Administration, Washington, D. C.

AEROSPACE MEDICINE AND BIOLOGY A Continuing Bibliography With Indexes, Sep. 1965

Oct. 1965 132 p

(NASA-SP-7011(16)) CFSTI: HC \$1.00/MF \$1.00 CSCL O6S

An annotated bibliography of aerospace medicine and biology is presented, along with subject, corporate source, and personal author indices. Subject coverage concentrates on the biological, physiological, and environmental effects to which man is subjected during and following simulated or actual flight in the earth's atmosphere or in interplanetary space. References describing similar effects on biological organisms of lower order are also included. Related topics such as sanitary problems, pharmacology, toxicology, safety and survival, life support systems, and exobiology are also given attention. L.S.

N66-10436# General Electric Co., Philadelphia, Pa. Missile and Space Div.

THE PLANET MERCURY: A TWENTY-YEAR SURVEY OF THE LITERATURE

Rosa Bernstein Mar. 1964 30 p refs

(R64SD20)

A bibliography is presented on the planet Mercury and includes 145 references published over the past 20 years, 37 of which have abstracts. This collection was intended as a starting point for a preliminary study to consider sending an unmanned scientific probe to the planet. R.N.A.

N66-10624# Bureau of Mines, Morgantown, W. Va. INVESTMENT AND OPERATING COSTS FOR CHEMICAL AND PETROLEUM PLANTS Bibliography, Jan.-Dec. 1964

Sidney Katell and William C. Morel 1965 136 p refs

(BM-IC-8265)

An annotated bibliography is presented on investment, and construction and operating costs for chemical and petroleum plants. Other subjects covered include cost estimating methods and theory, reports on construction projects, nuclear developments, water desalination and purification, and increasing use of computers in the process and development industries. R.N.A.

N66-10886*# West Virginia Univ., Morgantown.

ANNUAL STATUS REPORT TO NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

J. K. Stewart 1 Oct. 1965 14 p refs

(Grant NsG-533)

(NASA-CR-67721) CFSTI: HC \$1.00/MF \$0.50 CSCL 11F

The purpose of this research was to evaluate the effect of ultrasonic energy in producing a dispersed phase during the metallurgical processing of alloys. Three systems which were investigated included: the effect of insonation during the solidification of cast iron on the distribution of graphite and pearlite formation, the effect of insonation on the decomposition of iron carbide in white cast iron during heat treatment, and the dispersion strengthening of aluminum alloys. Ultrasonic vibrations were introduced into the alloys by means of a high purity nickel rod attached to the transducer which operated at a frequency of 20 000 cycles per second with a maximum sonic output of 75 watts. Insonation during solidification of gray cast iron produced more ferrite, less pearlite and more nodular graphite particles when compared with a non-isonated reference specimen. Author

N66-11633# Advisory Group for Aerospace Research and Development, Paris (France).

EJECTORS AND MIXING OF STREAMS Bibliography No. 6

J. Seddon and M. Dyke comp. (RAE) Nov. 1964 47 p refs
CFSTI: HC \$2.00/MF \$0.50

References on the mixing of streams, and methods and data for the design and performance prediction of practical ejectors are presented. The compilations are grouped under four headings, as follows: *Mixing of Streams*—theoretical and experimental fluid mechanics of mixing flows; *Ejectors*—theory and practice of actual ejectors such as thrust augmenters and aerodynamic nozzles; and basic design, performance, and specific applications in propulsion systems; *Jet-Pump Applications*—induction wind tunnels, ejectors for boundary layer control, etc.; *Miscellaneous*—noise of ejector nozzles, external drag of aircraft ejector systems, thrust measurement technique, etc. The bibliography, which contains 585 references, is arranged in alphabetical order by authors. M.G.J.

N66-11654# International Research and Development Co., Ltd., New Castle (England).

VACUUM AS AN INSULATOR: A BIBLIOGRAPHY

R. Hawley and A. Maitland Oct. 1965 111 p refs
(IRD-64-50)

A comprehensive bibliography is given of papers dealing with the properties of high vacuum as an electrical insulator. The phenomena relating to vacuum insulation and its breakdown are subdivided into 48 main topics. An index and cross-index are included that indicate the topics dealt with in each paper and, conversely, indicate the papers dealing with each topic. Author

N66-11853# Library of Congress, Washington, D. C. Aerospace Technology Div.

NUCLEAR SAFETY Surveys of Soviet Scientific and Technical Literature

Andrew Valiunas and Bartholomew Poplawski 22 Oct. 1965 64 p refs Annotated Bibliography
(ATD-B-65-76)

An annotated bibliography of Soviet scientific and technical literature on nuclear safety is reported. Presented are data on nuclear radiation detectors, radiation shielding, and remote handling and radiation protective devices. S.C.W.

N66-11914# Atomic Energy Commission, Washington, D. C. Div. of Technical Information.

RADIOISOTOPES IN MEDICINE A Selected Literature Search

Helen L. Ward, comp. Oct. 1965 262 p
(TID-3077, Suppl. 1) CFSTI: \$6.00

This annotated bibliography contains 3,160 selected references on the use of isotopes in medical diagnosis, therapy, and research. The major reference sources were *Nuclear Science Abstracts*, *Index Medicus*, *Biological Abstracts*, *Chemical Abstracts*, and *International Abstracts of Biological Science*. The period covered was 1958 through 1963. Author and report number-availability indexes are included. Author

N66-12297# Oak Ridge National Lab., Tenn.

NEUTRON PHYSICS DIVISION ANNUAL PROGRESS REPORT FOR PERIOD ENDING AUGUST 1, 1965

J. A. Biggerstaff et al Nov. 1965 79 p refs

(Contract W-7405-ENG-26)

(ORNL-3858, Vol. 1) CFSTI: \$3.00

Summaries on work in progress, and abstracts of published papers are presented on the research being conducted by the Neutron Physics Division. Report classifications include: *Nuclear and Reactor Physics*, *Critical Experiments*, *Reactor Shielding*, *Radiation Shielding Information Center*, *Mathematics and Computer Programs*, and *Radiation Detector Studies*. M.G.J.

N66-12345*# National Aeronautics and Space Administration, Washington, D. C.

AEROSPACE MEDICINE AND BIOLOGY A Continuing Bibliography with Indexes, Oct. 1965

Nov. 1965 142 p refs

(NASA-SP-1011(17)) CFSTI: HC \$1.00/MF \$1.00 CSCL 06S

N66-12484# Atomic Energy Commission, Oak Ridge, Tenn. Div. of Technical Information.

HOT LABORATORIES An Annotated Bibliography

William E. Bost, comp. Nov. 1965 197 p refs

(TID-3545, Rev. 1) CFSTI: \$5.00

This bibliography was prepared as a guide to the literature on design, equipment, and operation of laboratories for work with radioactive materials. The 1286 annotated references are arranged by subject. An author index and a report availability index are given. Author

N66-12524# Army Cold Regions Research and Engineering Lab., Hanover, N. H.

SNOW, ICE AND PERMAFROST, VOLUME XIX Bibliography With Abstracts

Frank M. Marson et al Jun. 1965 294 p refs

(CRREL-12; AD-621041)

The Bibliography provides a current and comprehensive coverage of basic and applied scientific research on snow, ice, and permafrost, as well as living and working in polar regions and other cold areas. Each entry includes a bibliographic citation, code designating the library holding of the abstracted item, assigned call number, Universal Decimal Classification number, and the abstract. This volume has a geographic index which was included as a forerunner to future editions contingent on the value derived. TAB

N66-12789# National Academy of Sciences—National Research Council, Washington, D. C. Prevention of Deterioration Center.

PROTECTIVE COATING SYSTEMS FOR NIOBIUM IN THE RANGE 1800–2500 F Bibliography

R. G. Lyle, comp. Jan. 1964 25 p refs /ts PDC Search No. 64-001

(PDL-50205; AD-621546)

A bibliography giving pertinent references on 'Longtime high reliability coatings for 1800 to 2500 F columbium applications'. In addition to oxidation protection above 1800 F, information is given concerning ductility, flexibility, thickness, diffusional stability and resistance of coating systems to thermal shock and cycling, impact abrasion and vibration. TAB

N66-12928*# Cook Electric Co., Morton Grove, Ill. Tech-Center Div.

RADIOISOTOPE HEAT SOURCE EVALUATION PROGRAM Final Report, 15 May-13 Dec. 1964

[1964] 246 p refs

(Contract NAS5-3849)

(NASA-CR-68182) CFSTI: HC \$6.00/MF \$1.50 CSCL 18B

The primary objective of the radioisotope heat source evaluation program was the compilation of an annotated bibliography on the nuclear characteristics of the following isotopes: strontium-90, cesium-134, cesium-barium-137, promethium-147, polonium-210, plutonium-238, curium-242, and curium-244. A secondary objective of the program was the generation of a Fortran computer program capable of computing the low energy bremsstrahlung (< 250 kev) emanated by candidate isotopic fuels. Promethium 147 was used as a typical radioisotope. At the beginning of each isotope section, the best values for the nuclear characteristics of that isotope are presented. These characteristics are: half life, spontaneous fission half life (when applicable), energy levels, decay schemes, spins, alphas/spontaneous fission (when applicable), and neutrons/spontaneous fission (when applicable). The bremsstrahlung computer program was tested using promethium-147 oxide as a typical case. In addition to the program proper a flow diagram of the program is presented along with graphs of the generated bremsstrahlung spectrum.

Author

N66-13078*# Georgia Inst. of Tech., Atlanta. School of Electrical Engineering.

BIBLIOGRAPHY AND SUMMARY OF METHODS RELATED TO THE ERROR ANALYSIS OF HYBRID COMPUTERS

Thomas M. Wright, Jr. 14 Oct. 1964 23 p refs

(Contract NAS8-2473)

(NASA-CR-68405) CFSTI: HC \$2.00/MF \$0.50 CSCL 09B

A summary is presented of current methods used in attacking the error problems present in analog computers, sampled data systems, and hybrid computers. The survey indicates that the best approaches to error analysis of hybrid computers are probably the use of sensitivity coefficients based on a modification of the method of Miller and Murray, and the use of root shifting techniques in linear problems or problems which can be linearized. In both approaches, approximations for transfer functions of different components and the use of a variety of mathematical tools such as Z transforms will be helpful. An extensive bibliography is also included. R.N.A.

N66-13081*# Melpar, Inc., Falls Church, Va.

THE CHEMISTRY OF COMETS An Annotated Bibliography

J. B. Evans and V. J. De Carlo Mar. 1965 61 p refs

(Contracts NASw-589; NASw-890)

(NASA-CR-68407) CFSTI: HC \$3.00/MF \$0.75 CSCL 07D

An annotated bibliography citing references for theoretical and experimental studies on the chemistry of comets is presented. The experimental studies referred to are designed primarily to derive an explanation of the chemical processes and mechanisms responsible for the formation of the emitting species observed from the spectra of comets. The theoretical studies refer to investigations initiated to describe the nucleus, coma, and tail in terms of structure, composition, temperature, evaporation, photodecomposition, and interaction with protons, electrons, and radiowaves. The references

are divided into three areas: (1) those which report the results of land-based observations and the theoretical interpretations resulting from these observations, (2) those which report data obtained in the laboratory as a direct result of experimentation, and (3) those which report proposed plans for space investigations of comets.

M.R.W.

N66-13244# Oak Ridge National Lab., Tenn.

TRACER DIFFUSION IN METALS. PART II: IMPURITY DIFFUSION IN PURE METALS A Bibliography, 1938-Dec. 1964

John Askill, comp. Nov. 1965 24 p refs

(Contract W-7405-ENG-26)

(ORNL-3795, Pt. II)

Frequency factors and activation energies for tracer solute diffusion in pure metals have been compiled from the literature reported between 1938 and December 1964. An authors' index is also included.

Author

N66-13338*# North American Aviation, Inc., Los Angeles, Calif.

NONDESTRUCTIVE TESTING THEORY AND APPLICATION FOR COMPOSITES Bibliography

15 Oct. 1965 219 p

(Contracts NAS8-11733; AF 33(615)-2865)

(NASA-CR-68604; NA-65-813) CFSTI: HC \$6.00/MF \$1.25 CSCL 05B

A comprehensive literature survey was conducted as one phase of work performed under the NASA and Air Force contracts identified in the Foreword. Literature relating to non-destructive testing theory, techniques and equipment was collected and indexed. Material relating to ultrasonics and ultrasonic testing equipment and techniques was of primary interest, however other fields of nondestructive testing are also included in the survey. Related subject material concerning honeycomb and sandwich construction, composites, and bonding, are included to provide helpful background information.

Author

N66-13434# Library of Congress, Washington, D. C. Aerospace Technology Div.

MIXING OF CONCENTRIC HIGH-VELOCITY AIRSTREAMS Surveys of Soviet-Bloc Scientific and Technical Literature Seraphim Parandjuk 29 Oct. 1965 28 p Compilation of Abstracts

(ATD-P-65-96)

An annotated bibliography, compiled from Soviet research articles, is presented on the mixing of concentric high velocity airstreams.

R.N.A.

N66-13440# Lockheed Missiles and Space Co., Sunnyvale, Calif. Space Systems Div.

GEMINI AGENA TARGET VEHICLE Reports Bibliography, Period Ending 30 Jun. 1964

1 Sep. 1964 16 p refs

(Contract AF 04(695)-129)

(LMSC-A605144; SSD-62-80; AD-462886)

Contents: Communications and Control System Reports; Engineering/Technical Reports; Facilities Reports; Flight Planning Reports; Human Factors Reports; Service, Maintenance, and Operation Manuals; Presentations and Briefing Aids; Product Assurance Reports; Progress Reports; Propulsion System Reports; Study Reports; and Test Reports. TAB

N66-13506# Library of Congress, Washington, D. C. Aerospace Technology Div.

HIGH EXPLOSIVES, FUZES, AND FUZING MECHANISMS. PART A. CHEMISTRY OF HIGH EXPLOSIVES: COMPOSITION, USE, SELECTION, MANUFACTURE, AND TESTING OF EXPLOSIVES *Surveys of Communist World Scientific and Technical Literature*

25 Aug. 1965 111 p refs
(ATD-P-65-65)

A compilation of abstracts, annotations, and exploitations containing information on the chemistry of explosives is presented. The bibliography is based on Soviet-bloc open source material for the period from 1 January to 31 December 1963 which was available at the Library of Congress. Material reported on includes: synthesis and properties of ammonium nitrate; preparation, properties, testing, classification, and uses of such simple ammonium nitrate explosives as Ammonits, Ammotols, Detonits, Granulits, Igdanits, and Zernogranulits; oxidizing agents; synthesis and properties of Na, K, and Cs ozonides; studies on the sensitivity of explosives; slow decomposition of explosives; explosiveness of gas mixtures; flame extinguishing properties of aqueous gels; ways of lowering the tendency of explosives to burn out; methods of testing; and safety practices. M.R.W.

N66-13522# International Union of Pure and Applied Chemistry, Basle (Switzerland).

BIBLIOGRAPHY ON THE HIGH TEMPERATURE CHEMISTRY AND PHYSICS OF MATERIALS IN THE CONDENSED STATE, JULY, AUGUST, SEPTEMBER, VOLUME 1965, NUMBER 3

J. J. Diamond, ed. (Natl. Bur. Standards) [1965] 107 p refs
CFSTI: HC \$4.00/MF \$0.75

A bibliography is presented on the high temperature chemistry and physics of materials in the condensed state. References are included on devices for achieving temperatures above 1500° C; devices for measuring and controlling temperatures above 1500° C; devices for physical measurements at temperatures above 1000° C; properties at temperatures below 1000° C of metallic, nonmetallic, and mixed materials which melt above 1500° C; properties at temperatures above 1000° C of metallic, nonmetallic, and mixed materials which melt above 1500° C; properties at temperatures above 1000° C of metallic and nonmetallic materials which melt below 1500° C; phase equilibria; and reactions at temperatures above 1000° C. R.N.A.

N66-13563*# Brown Engineering Co., Inc., Huntsville, Ala. Research Labs.

AN ANNOTATED BIBLIOGRAPHY ON MOTION OF CHARGED PARTICLES IN MAGNETIC FIELDS AND MAGNETIC SHIELDING AGAINST SPACE RADIATION

Perry F. McDonald Nov. 1965 44 p refs
(Contract NAS8-20166)

(NASA-CR-68657; R-161) CFSTI: HC \$2.00/MF \$0.50
CSCL 201

This annotated bibliography on the theory of charged particle motion in magnetic fields and the shielding against charged particle radiation using magnetic fields is divided into five sections: (1) general references on charged particle motion and cosmic rays, (2) motion of untrapped particles in magnetic fields, (3) motion of trapped particles in magnetic fields, (4) ring currents in the magnetosphere, and (5) space radiation shielding using magnetic and electric fields. It should be helpful to those interested in the interaction of cosmic rays and energetic solar particles with the geomagnetic field and those interested in the active methods of shielding against space radiation. Author

N66-13751# Library of Congress, Washington, D. C. Aerospace Information Div.

PASSIVE ELECTRONIC INTERCEPT TECHNIQUES AND DEVICES *Review of Soviet Literature*

A. I. Samoylov et al 18 Mar. 1964 83 p refs
Compilation of Abstracts
(AID-0-64-15; AD-622235) CFSTI: HC \$3.00/MF \$0.75

Abstracts are compiled from Soviet open-source materials on passive electronic intercept techniques and devices. The following topics are considered: receiving equipment; receive detection techniques; direction finding techniques; antennas; atmospheric propagation; data transmission and recording.

TAB

N66-13752# Defense Dept., Washington, D. C. Office of the Director of Defense Research and Engineering.

SURVEY OF STUDIES AND COMPUTER PROGRAMMING EFFORTS FOR RELIABILITY, MAINTAINABILITY AND SYSTEM EFFECTIVENESS

Sep. 1965 72 p refs

(OEM-1; AD-622676) CFSTI: HC \$3.00/MF \$0.75

Survey of efforts under way or recently completed for computer programming or techniques that are adaptable to computer operations in the areas of system analysis for reliability, maintainability, availability, system effectiveness, cost-effectiveness, system simulation, circuit analysis, and failure mode and effects analysis. Author (TAB)

N66-13757# Library of Congress, Washington, D. C. Aerospace Information Div.

THE SOVIET 300-METER METEOROLOGICAL TOWER
12 Feb. 1964 70 p refs
Transl. into ENGLISH from Russian
(AID-U-64-6; AD-622233) CFSTI: HC \$4.00/MF \$1.00

Information presented herein has been extracted from open-source materials published in the Soviet Union between 1960 and 1963. Most of the scientific data reported in these sources represent observational data obtained at least one year, and, in some instances, as many as four years, prior to the date of publication. The report consists of two parts. Part A contains a brief, summarized description of (1) the 300-meter tower installation complex (physical plant); (2) the tower's organizational relationship to the USSR Academy of Sciences; (3) a list of scientific personnel known to be associated with the research programs at the tower; and (4) abbreviated statements of the research purposes envisaged for all tower installations in the Soviet Union as well as those envisaged for the 300-meter tower. TAB

N66-13765# Naval Research Lab., Washington, D. C. Applied Optics Branch.

A BIBLIOGRAPHY OF CERTAIN OPTICAL PROPERTIES OF LIQUID WATER IN THE INFRARED REGION (1-2000 MICRONS) *Interim Report*

P. W. Davis Aug. 1965 18 p refs

(NRL-BIBL-25; AD-622225) CFSTI: HC \$1.00/MF \$0.50

A selective bibliography was compiled of references pertaining to the absorption spectra, reflectance spectra and optical constants of liquid water in the infrared from 1 micron to 2000 microns. Representative curves are presented for absorption, reflectance and index of refraction. There is a serious deficiency in the scientific literature on the infrared optical properties of sea water. Author (TAB)

N66-13927# Atomic Energy Commission, Oak Ridge, Tenn. Div. of Technical Information Extension.

PULSED REACTORS AND PULSED CRITICAL ASSEMBLIES *A Literature Search*

Richard J. Smith comp. Nov. 1965 51 p refs
(TID-3571(Suppl. 1)) CFSTI: \$3.00

A total of 246 subject-arranged annotated references is presented to reports, published literature, and patents concerning the technology of pulsed neutron facilities. Personal author and report number-availability indexes are provided. Author

N66-14046# Library of Congress, Washington, D. C. Aerospace Technology Div.

COMPUTER TECHNOLOGY Surveys of Soviet Scientific and Technical Literature

Joseph Podoski and Stuart Hibben 13 Oct. 1965 63 p refs
Compilation of Abstracts
(ATD-P-65-64)

A compilation of abstracts is presented on computer technology. Information not directly related to the computer subject is included because of its broad implications for study in this field. The 43 abstracts are arranged alphabetically by author within each of the following categories: components, design, applications, and associated systems. C.T.C.

N66-14146# Library of Congress, Washington, D. C. Aerospace Information Div.

CHARGE-CHANGING COLLISIONS IN GASES: A DESCRIPTIVE BIBLIOGRAPHY, PART I

6 Feb. 1964 74 p refs
(AID-U-64-4, Pt. I; AD-622232)

A bibliography is given of charge-changing collisions in gases. Eighty-seven articles are listed and their abstracts are included. TAB

N66-14160# National Aeronautics and Space Administration, Washington, D. C.

AEROSPACE MEDICINE AND BIOLOGY Bibliography with Indexes, Nov. 1965

Dec. 1965 129 p refs
(NASA-SP-7011(18)) CFSTI: HC \$1.00/MF \$1.00 CSCL 06

A selection of annotated references to unclassified reports and journal articles relating to aerospace medicine and biology that were introduced into the NASA information system during November, 1965 is given, along with subject, author, and corporate source indexes. Among the subject areas covered are the biological, physiological, psychological, and environmental effects to which man is subjected during and following simulated or actual flight in the earth's atmosphere or in interplanetary space. L.S.

N66-14181# Library of Congress, Washington, D. C. Aerospace Information Div.

MIXING OF CONCENTRIC HIGH VELOCITY AIR STREAMS Compilation of Abstracts

16 Apr. 1964 42 p refs /ts Rept.-2
(AID-U-64-24; AD-622933) CFSTI: HC \$2.00/MF \$0.50

The report is the second in a series dealing with published Soviet research on the subject of the mixing of concentric high-velocity air streams. It comprises abstracts of articles selected from Soviet open literature available at the Aerospace Information Division and the Library of Congress. TAB

N66-14262# International Union of Pure and Applied Chemistry, Basle (Switzerland).

HIGH TEMPERATURE CHEMISTRY AND PHYSICS OF GASES AND GAS-CONDENSED PHASE REACTIONS Bibliography

L. Brewer (Calif. Univ., Berkeley) 30 Sep. 1965 20 p refs (Rept.-16)

A bibliography is given on the high temperature chemistry and physics of gases and gas-condensed phase reactions. Spectroscopy of interest to high temperature chemistry is included. C.T.C.

N66-14331# National Academy of Sciences—National Research Council, Washington, D. C. Space Science Board.
UPPER ATMOSPHERES OF THE PLANETS

Joseph W. Chamberlain (Kitt Peak Natl. Obs.), and Richard M. Goody (Harvard Univ.) /n its Space Res. Dec. 1965 p 96-107 refs (See N66-14327 05-30) CFSTI: HC \$4.00/MF \$0.75

A priority system is set up for experiments dealing with planetary upper atmospheres, and a bibliography is included for articles on the subject. Studies serving engineering requirements for support of exploration are considered urgent; programs related to exobiology and the evolution of life are rated important; and research bearing on the origin and evolution of the solar system is classified as desirable. The general area of illuminating the comparative anatomy of atmospheres is considered as academic. A recommended program for obtaining data considers topside sounders, airglow measurements, densities from drag data, magnetic fields, special scans of resonance lines, Raman spectra, ultraviolet photometry and absorption from sunlight, far infrared emissions, and occultations. The bibliography lists articles according to (1) general reviews, (2) atmospheric evaporation and evolution, and planetary coronas, (3) composition and photochemistry, (4) structure of upper atmospheres and ionospheres, and (5) airglow and other optical measurements. Some of the references are annotated. M.W.R.

N66-14539# TRW Systems, Redondo Beach, Calif. Research Section.

THE METEOROID ENVIRONMENT: A SELECTED BIBLIOGRAPHY

L. R. Magnolia 3 Nov. 1965 16 p refs /ts Spec. Lit. Survey No. 11
(STL-9990-7156-KU-000)

This selected bibliography on the meteoroid environment covers all phases of aerospace research and development that have to consider meteoroid impacts, interplanetary dust, and debris and radiation effects in the earth's vicinity and in outer space travel. G.G.

N66-14558# Atomics International, Canoga Park, Calif.
EIGHTH AFOSR CONTRACTORS' MEETING ON ION AND PLASMA PROPULSION RESEARCH Summaries of Research [1965] 43 p refs Meeting held at Los Angeles, 29-30 Apr. 1965

(Contract AF 49(638)-1222)
(AL-65-77; AFOSR-65-1266; AD-622527) CFSTI: HC \$2.00/MF \$0.50

A bibliography of research, including abstracts, is given on ion and plasma propulsion research. TAB

N66-14611# Library of Congress, Washington, D. C. Aerospace Technology Div.
THE THEORY OF DETONATION, THE COMBUSTION MECHANISM AND THE PROPERTIES OF EXPLOSIVES Surveys of Soviet Scientific and Technical Literature

Seraphim Parandjuk 8 Dec. 1965 46 p refs Compilation of abstracts
(ATD-65-111)

Abstracts are presented on articles in the Soviet open literature dealing with the theory of combustion, the mechanism of combustion, and the properties of explosions. A total of fifty abstracts are included. E.E.B.

N66-14851# Library of Congress, Washington, D. C. Aerospace Technology Div.
LIFE SUPPORT SYSTEMS—PHOTOSYNTHESIS Surveys of Soviet Scientific and Technical Literature
 Boris Nartsisov 7 Dec. 1965 87 p refs
 (ATD-65-107)

A brief comprehensive survey of the literature published in Soviet periodicals during 1964, and an annotated bibliography which supports the survey and is arranged to follow the narrative sequence of the survey is reported. The attention of the Soviet scientist was focused on the following main points of interest: (1) investigation of closely packed chlorophyll modifications in model systems; (2) light conservation, energy transfer, photoexcitation of triplet states in tetrapyrrol pigments; (3) intermediate reduced and oxidized forms of tetrapyrrol pigments; (4) evolution of oxygen in photosynthesis; (5) investigation of the structure of tetrapyrrol pigments; and (6) summaries of scientific meetings. R.W.H.

N66-14667# Library of Congress, Washington, D. C. Aerospace Technology Div.
EFFECT OF IONIZING RADIATION ON ANIMALS AND PLANTS Surveys of Soviet Scientific and Technical Literature
 Janice L. Smith 8 Dec. 1965 25 p refs Compilation of abstracts
 (ATD-65-110)

Presented are 10 articles which include experimental and theoretical studies on ionizing radiation effects of living organisms. Comparative studies of the radiosensitivity of different animal strains and species, determination of the RBE of different types of ionizing radiation, and investigation of the relationship between the age of animals and their radiosensitivity are considered. Newer research areas include protein metabolism in animals under the influence of radiation, changes in the proteolytic activity of blood during irradiation, and the neurohumoral mechanism of the remote radiation effect. R.W.H.

N66-14700# Library of Congress, Washington, D. C. Aerospace Technology Div.
HIGH-PURITY METALS Surveys of Soviet Scientific and Technical Literature; Annotated Bibliography, 1959-1963
 Alex Zurichenko 8 Dec. 1965 29 p refs
 (ATD-65-109)

An annotated bibliography of Soviet and Soviet-bloc materials dealing with high purity metals is presented. All of the articles included are cataloged at the Library of Congress Aerospace Technology Division, from which information about availability of translations can be obtained. M.W.R.

N66-14737# National Academy of Sciences—National Research Council, Washington, D. C. Prevention of Deterioration Center.
REINFORCED PLASTICS AND LAMINATES FOR HOT STRUCTURES (600 F AND ABOVE)
 William A. Cosby and Hans Janecka Feb. 1964 24 p refs
 (PDC-64-009; PDL-50534; AD-621547) CFSTI: HC\$1.00/MF \$0.50

A bibliography on heat and oxidation resistant reinforced plastics and laminates for long-time structural use at temperatures of 600 F and above consisting primarily of references which evaluate such material systems from a mechanical properties point of view. References which evaluate the electrical properties of the material systems selected for their structural applicability are included if the evaluations were made at temperatures greater than 600F. Selected documents on reinforcement fibers are included due to interest in finishes and processing conditions which aid in the retention of fiber strengths at

high temperatures. The bibliography does not contain references which evaluate the ablative characteristics of the materials. TAB

N66-15000# Library of Congress, Washington, D. C. Aerospace Technology Div.
SOME ASPECTS OF COMBUSTION KINETICS Surveys of Soviet-Bloc Scientific and Technical Literature
 Victor Seemann 6 Dec. 1965 148 p refs Compilation of abstracts /ts Rept.-1
 (ATD-P-65-100)

Abstracts and translations of recent material pertaining to the kinetics of supersonic combustion are presented. A general analysis of the subject areas discussed, which include gas combustion behind shock waves, shock wave propagation, flow velocities, detonation, stabilization, and free radical recombination, is given. An author index to the above abstracts is given, and an additional compilation of abstracts in the subject area compiled from the Aerospace Technology Division press of the Library of Congress is also given. L.S.

N66-15052*# Hawaii Inst. of Geophysics, Honolulu. Astrogeophysics Div.
ZODIACAL LIGHT Summary Report
 J. L. Weinberg 3 Aug. 1964 21 p refs
 (Grant NSG-676)
 (NASA-CR-58323; HIG-64-11) CFSTI: HC \$1.00/MF \$0.50 CSDL 03A

A survey is presented in the form of tables and graphs of the surface brightness (radiance) and the degree of polarization of the zodiacal light as a function of elongation in the plane of the elliptic. Numerical results are given, and the spectral region or effective wavelength is specified whenever possible. A bibliography is included of zodiacal light and gegenschein references during the period January 1961 through June 1964. Also included are papers on closely related problems which make use of zodiacal light results. C.T.C.

N66-15109# Library of Congress, Washington, D. C. Aerospace Technology Div.
PHENOMENA IN THE UPPER ATMOSPHERE SURVEYS OF COMMUNIST WORLD SCIENTIFIC AND TECHNICAL LITERATURE
 Edward Gelins 7 Dec. 1965 86 p refs Comprehensive Rept.
 (ATD-65-81)

An annotated bibliography is presented on upper atmospheric phenomena. References are included on the ionosphere and electromagnetic wave propagation, cosmic radiation and the radiation belts, telluric currents, geomagnetism, whistlers, satellite and missile electromagnetic wave propagation, and auroras and electromagnetic wave propagation. R.N.A.

N66-15110# Library of Congress, Washington, D. C. Aerospace Technology Div.
COMMUNICATIONS NETWORKS. PART I: REVIEW OF SOVIET LITERATURE Surveys of Soviet Scientific and Technical Literature
 Vladimir Podpaly and Wallace Creten 10 Sep. 1965 140 p refs Compilation of abstracts /ts Rept.-5
 (ATD-P-65-71)

An annotated bibliography is presented on Soviet communications equipment and communications facilities and their location. R.N.A.

N66-15123# Library of Congress, Washington, D. C. Aerospace Technology Div.
RESEARCH ON F-VALUES Surveys of Soviet Scientific and Technical Literature
 Edward Gelins 7 Dec. 1965 50 p refs Comprehensive Rept. (ATD-65-86)

Research on oscillator strengths of electron transitions from one energy level to another as shown in the spectral lines of chemical elements published in Soviet literature is abstracted and evaluated. No special annotation is given in this bibliography which is a continuation of a previous work entitled "Research on f-Values". Articles dealing with both theoretical and experimental investigations are included. The author's conclusion contains an evaluation of the general approach to the problem of oscillator strengths of spectral lines and new methods introduced in investigations, and comments on individual works. R.N.A.

N66-15195# Library of Congress, Washington, D. C. Aerospace Technology Div.
MATERIALS FOR HIGH-TEMPERATURE ENERGY CONVERTERS Surveys of Soviet Scientific and Technical Literature—Annotated Bibliography
 Michael Slesarenko 9 Dec. 1965 37 p refs (ATD-65-112)

An annotated bibliography of 93 Soviet monographs on high temperature energy converters is presented. Studies related to this field are also listed. The data were compiled from open source materials available at the Aerospace Technology Division and the Library of Congress, and cover the years 1955 through 1960. Translations and English abstracts are indicated when available, and an author index is included. M.G.J.

N66-15326# Columbia Univ., Palisades, N. Y. Lamont Geological Observatory.
A BASIC STUDY OF ELASTIC WAVE PROPAGATION
 Final Report, 28 Jun. 1963–31 Dec. 1964
 James Dorman [1964] 8 p
 (Contract DA-31-124-ARO(D) 136)
 (AROD-4120-2; AD-623592) CFSTI: HC \$1.00/MF \$0.50

Abstracts are given of the following publications: Relative excitation of surface waves by earthquakes and underground explosions in the California-Nevada region; Surface wave radiation patterns for underground nuclear explosions and small magnitude earthquakes; Use of surface wave rejection filters to record mantle waves of low order; Travel times, body waves, and dispersion in the earth; Travel times, body waves, and normal modes of the earth. TAB

N66-15386*# Jet Propulsion Lab., Calif. Inst. of Tech., Pasadena.
PUBLICATIONS OF THE JET PROPULSION LABORATORY, JULY 1964 THROUGH JUNE 1965
 Royal L. Woods ed. 15 Dec. 1965 74 p refs
 (Contract NAS7-100)
 (NASA-CR-69354; JPL-BIBL-39-6) CFSTI: HC \$3.00/MF \$0.75 CSCL 05B

Abstracts of technical reports and memoranda are presented. Technical reports are designed to report on a single significant development; on the completion of a recognizable phase, or on the completion of an entire project, or may record data or a development growing out of an assigned project but not directly related to it. Technical memoranda report the results of a special study of a problem, provide preliminary information on a project, or present any other material which is intended for a limited audience. E E B

N66-15402# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).
OPERATIONS RESEARCH V, TITLE INDEX
 1964 55 p refs
 (TDCCK-40683) CFSTI: HC \$3.00/MF \$0.50

Titles of publications and reports announced in the abstract bulletin, *Operations Research*, are presented. The index is divided into sections on *Theory*, which include queuing, programming, game, information, and inventory theories, and the theory of the optimum distribution of effort; *Applications*, which covers management, military applications, quality control, accountancy, and medical problems; *Book Reviews*; and *News*. M.G.J.

N66-15417# International Union of Pure and Applied Chemistry, Basle (Switzerland). Sub-Commission on Condensed States.
BIBLIOGRAPHY ON THE HIGH TEMPERATURE CHEMISTRY AND PHYSICS OF MATERIALS IN THE CONDENSED STATE, VOLUME 1964, NUMBER 4, OCTOBER-DECEMBER 1964

Jacob J. Diamond, ed. (NBS) [1964] 68 p refs

Publications relating to high temperature chemistry and physics of materials in the condensed state are listed. The bibliography is grouped according to (1) devices for achieving temperatures above 1500°C, for measuring and controlling temperatures above 1500°C, and for physical measurements at temperatures above 1000°C; (2) properties of metallic, non-metallic, and mixed materials at temperatures below 1000°C of materials which melt above 1500°C, at temperatures above 1000°C of materials which melt below 1500°C, at temperatures above 1000°C of materials which melt below 1500°C; (3) phase equilibria; and (4) reactions at temperatures above 1000°C. M.G.J.

N66-15479*# Franklin Inst., Philadelphia, Pa. Research Labs.
A BIBLIOGRAPHY (WITH ABSTRACTS) ON GAS-LUBRICATED BEARINGS Interim Report
 Alec Peters and Patricia Devlin Nov. 1965 232 p refs Sponsored in part by NASA and AEC
 (Contract Nonr-2342(00))
 (NASA-CR-69394; I-A2049-25) CFSTI: HC \$6.00/MF \$1.25 CSCL 13I

The compilation presented in this bibliography has been prepared as a literature survey in support of an experimental and development program of research on gas lubricated bearings. The bibliography is a continuation of a similar work issued in October 1961. It contains 493 abstracts. It covers the magazine, book, periodical technical report and patent literature, both domestic and foreign. Most of the abstracts are either author's or author modified type. It is arranged in chronological order from January 1961 through December 31, 1964, according to the date of publication. The first two digits of the five digit number of each reference indicate the year. Some 55 sources, which were not recorded in the previous bibliography, are also abstracted. The bibliography is provided with an author index (corporate and individual), subject index and patent index. Author

N66-15498# Northwestern Univ., Evanston, Ill. Materials Research Center.
MATERIALS RESEARCH CENTER SIXTH ANNUAL REPORT, 1 FEBRUARY–30 SEPTEMBER 1965
 [1965] 132 p refs
 (Contract ARPA SD-67)

Contents: Dissipation of energy due to coupling of thermal and mechanical effect; Syntheses and properties of organo-metallic compounds; Theory of transport and other properties

of metals and plasmas; Effect of interaction of imperfections on the deformation mechanism; Microwave investigation of semiconductors and magnetic materials; Electronic properties of solids; Diffraction studies of materials; Polymer studies; Boundary value problems in the elastic theory of dislocations; Studies of semiconducting properties of gray tin; Precipitation studies in solids; Properties of high temperature materials; Thin films and superconductors; Cross linking, chain conformation, and crystallization studies in high polymers; Structure and phase transformations; Ultra thin metal crystals; Theoretical studies of proton transfer mechanisms in hydrogen-bonded solids; Proton relaxation time in polymers; Ultra thin metal crystals; Theoretical studies of proton transfer mechanisms in hydrogen-bonded solids; Proton relaxation time in polymers; Structural studies by diffraction methods; Sintering kinetics; Anisotropic semiconductors; Studies of the defect solid state; Band structure of semiconductors and theory of superfluids; Experimental determination of Fermi surfaces; Direct observation of lattice imperfections and their relation to mechanical and physical properties; Mathematical theory of dislocations, plasticity, viscoelasticity and fracture; Ionization potentials of inorganic molecules by photoionization; Fluorescent lifetimes of large molecules; Solid state nuclear resonance studies; Synthesis and structures of inorganic compounds.

TAB

N66-15514# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).

WEATHER SATELLITES: TIROS AND NIMBUS LITERATURE SURVEY

Jun. 1965 74 p refs

(TDCK-42600) CFSTI: HC \$3.00/MF \$0.75

Abstracts of selected articles dealing with Tiros and Nimbus satellite observations and a review of weather satellite launchings and observational instrumentation are included in a literature survey listed chronologically in four separate sections. The first chapter includes general background information and deals with objectives and capabilities of weather satellites; design, instrumentation, and evolution of the Tiros system; and plans for future developments. A chapter on design and instrumentation considers weather satellites and their systems, optical instrumentation, radiation experiments, ground stations, and data processing. The section on cloud photography and nephalanalyses contains abstracts on cloud pattern and structure, satellite observations, synoptic interpretation, and comparisons of Tiros photography with conventional meteorological observations. In the last chapter are reviews dealing with radiation data interpretation and satellite measurements.

M.W.R.

N66-15552# Manitoba Univ., Winnipeg. Dept. of Psychology. **BIBLIOGRAPHY OF STUDIES ON SENSORY DEPRIVATION AND RELATED CONDITIONS**

John P. Zubek, Doris Dobbs, and Louis Bayer [1965] 31 p refs (Grant NIH G-MH-08748-01) CFSTI: HC \$2.00/MF \$0.50

A bibliography is presented on studies on sensory deprivation and related conditions. References are included on perceptual deprivation, sensory isolation, sensory invariance, stimulus deprivation, patterned stimulation, confinement, social isolation, monotony, effects of early experiences in humans and animals, and brainwashing.

R.N.A.

N66-15736# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).

REVIEW OF LITERATURE ON NATURAL SCIENCES AND CHEMISTRY [LITERATUURVERZICHT, NATUURKUNDE EN SCHEIKUNDE]

9 Sep. 1965 48 p In DUTCH *Its* Vol. 16, No. A-386

Abstracts compiled from a literature review of research and development efforts in several countries are presented. Subject matter covered includes acoustics and shock, lasers, optics, photography, solid materials, quantum mechanics, superconductivity, corrosion, surface treatment, plastics, fuels, materials, water and air purification, fire fighting, and packing materials. Technical news items are also included.

Transl. by J.O.

N66-15737# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).

REVIEW OF LITERATURE ON AVIATION TECHNOLOGY [LITERATUURVERZICHT, LUCHTVAART-TECHNIEK]

12 Oct. 1965 19 p In DUTCH *Its* Vol. 13, No. L-284

Abstracts compiled from a literature review of research and development efforts in several countries are presented. Categories include model descriptions, propulsion, industrial materials, panel systems and instruments, navigation and air traffic control, safety, aerodynamics, strength and vibration experiments, and loading. Data on operating costs are also included.

Transl. by J. O.

N66-15746# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).

REVIEW OF LITERATURE ON MILITARY MEDICINE [LITERATUURVERZICHT, MILITAIRE GENEESKUNDE]

17 Jul. 1965 41 p In DUTCH and ENGLISH *Its* Vol. 11, No. G-122

CFSTI: HC \$2.00/MF \$0.50

Abstracts on a wide variety of subjects are presented in a literature survey of military medicine. Subjects of the reviews include radiation exposure, dermatology, psychology and psychiatry, aviation medicine, internal medicine, surgery, pharmacology and toxicology, and new trends and devices.

M.W.R.

N66-15747# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).

REVIEW OF LITERATURE ON OCEANOGRAPHY AND NAVIGATION [OCEANOGRAPHY, NAVIGATION LITERATUURVERZICHT]

10 Oct. 1965 36 p In ENGLISH and DUTCH *Its* Vol. 2, No. ON-13

CFSTI: HC \$2.00/MF \$0.50

A variety of subjects dealing with oceanography and navigation are reviewed in a literature survey. Abstracts deal with physical oceanography, the chemistry of sea water, geophysics, and oceanographic and hydrographic equipment. General navigation problems are included as well as abstracts on equipment and instruments for sea, air, land, and space navigation.

M.W.R.

N66-15748# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).

REVIEW OF LITERATURE ON ELECTRO-TECHNOLOGY [ELECTRO-TECHNIEK LITERATUURVERZICHT]

21 Oct. 1965 37 p In ENGLISH, DUTCH, FRENCH, and GERMAN *Its* Vol. 14, No. E-473 CFSTI: HC \$2.00/MF \$0.50

Telecommunications, electronics, radar, information processing, and computer systems are the general areas covered in a literature survey. Abstracts deal with analog computers, computer hardware and applications, and measuring and regulating techniques. Other topics reviewed include oscillators and magnifiers, filters and networks, and electromagnetic radiation.

M.W.R.

N66-15751# American Meteorological Society, Boston, Mass. **BIBLIOGRAPHY ON PHYSICAL OCEANOGRAPHY OF THE INDIAN OCEAN**

Parkash Samuel Jun. 1965 137 p refs /*Its Spec. Bibliog.*
on Oceanog. Contrib. No. 2
(Contract N62306-1145)
(AD-624466) CFSTI: HC \$4.00/MF \$1.00

The scope of this bibliography is limited to the different aspects of physical oceanography, viz.: temperature, density, salinity, chemical composition, waves, currents, circulation, methods of measurements, instruments, etc. Papers on bottom topography, geology and biology have been excluded. Material on the weather and climate of the Indian Ocean, of its islands and of the Indian Subcontinent has been reserved for future bibliographies. TAB

N66-15780# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).
REVIEW OF LITERATURE ON AUTOMOTIVE TECHNOLOGY [AUTOMOBIELTECHNIEK LITERATUURVERZICHT]

16 Oct. 1965 34 p refs In DUTCH, ENGLISH, and GERMAN /*Its Vol. 1, No. V-3*
CFSTI: HC \$2.00/MF \$0.50

An annotated bibliography on automotive technology is presented. Descriptions and design specifications of various trucks, amphibious landing vehicles, bulldozers, and commercial vehicles are reported. Studies on braking, ignition, engine, suspension, and electrical systems are summarized. Reference is given to recent developments in automotive tires and safety glass. Also reported are computer programs to determine the relationship between pressure flow, heat release, and thermal load in diesel engines. A report on computer simulation of the automobile driver is also included. M.R.W.

N66-15783# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).

REVIEW OF LITERATURE ON THE INDUSTRIAL SCIENCES [BEDRIJFSWETENSCHAPPEN LITERATUURVERZICHT]

13 Sep. 1965 29 p refs In DUTCH and ENGLISH /*Its Vol. 4, No. EM-86*
CFSTI: HC \$2.00/MF \$0.50

An annotated bibliography on management systems, financial control, economizing, cost estimation, logistics, psychology, sociology and personnel training techniques in military, industrial, and research facilities is presented. M.R.W.

N66-15802# Massachusetts Inst. of Tech., Cambridge. Center for Materials Science and Engineering.

INTERDISCIPLINARY LABORATORY PROGRAM Annual Technical Report, 1964-1965

1 Nov. 1965 143 p refs
(Contract ARPA SD-90)
(AD-623906) CFSTI: HC \$4.00/MF \$1.00

Contents: Chemical and solid state physics; Electronic, magnetic, and optical properties of materials and device applications; Metallurgy; Central facilities. TAB

N66-15827*# National Aeronautics and Space Administration, Washington, D. C.

AEROSPACE MEDICINE AND BIOLOGY Bibliography

Jan. 1966 96 p refs
(NASA-SP-7011(19)) CFSTI: HC \$1.00/MF \$0.75 CSCL 06E

Abstracts on the biological physiological, psychological, and environmental effects to which man is subjected during and following simulated or actual flight in the earth's atmosphere or in interplanetary space are presented. References describing similar effects on biological organisms of lower order

are also included. Related subjects such as sanitary problems, pharmacology, toxicology, safety, survival, life support systems, exobiology, and personnel factors receive appropriate attention. The abstracts were prepared by three contributing organizations, NASA, AIAA, and LC. E.E.B.

N66-15837# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).

REVIEW OF LITERATURE ON CIVILIAN TRANSPORT [INTERN-TRANSPORT LITERATUURVERZICHT]

Jul. 1965 30 p refs In DUTCH /*Its No. 50*
CFSTI: HC \$2.00/MF \$0.50

Abstracts are presented covering the transportation of goods, warehouse storage, loading and unloading methods, packing, safety, and transportation aids. E.E.B.

N66-15869# Technisch Documentatie en Informatie Centrum Voorde Krijgsmacht, The Hague (Netherlands).

REVIEW OF LITERATURE ON MILITARY CONSTRUCTION [KRIJGSBOUWKUNDE LITERATUURVERZICHT]

4 Oct. 1965 23 p refs In DUTCH and ENGLISH /*Its Vol. 7, No. K-77* CFSTI: HC \$1.00/MF \$0.50

A compilation of abstracts is presented of literature pertaining to military construction. Major areas considered are concrete, ground mechanics and foundation technology; bridges, roads, and airfields; photogrammetry and geodetics; civilian construction; and chemical, biological, and radiological warfare. Building constructions, building physics, and building materials are topics considered under civilian construction; and such areas as shock waves, blasting, and protective buildings are included relative to warfare. C.T.C.

N66-15871# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).

REVIEW OF LITERATURE ON MANUFACTURING TECHNOLOGY [LITERATUURVERZICHT WERKPLAATSTECHNIEK]

Oct. 1965 31 p refs In DUTCH, GERMAN, FRENCH, and ENGLISH /*Its Vol. 10, No. W-91* CFSTI: HC \$2.00/MF \$0.50

A compilation of abstracts is presented of literature on manufacturing technology. Major areas covered are stressed operations, operations without tension (or stress), and manufacturing techniques. These include such topics as cutting and stressing tools, broaching and filing, grinding, and pressing. C.T.C.

N66-15872# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).

REVIEW OF LITERATURE ON SHIPBUILDING AND NAVIGATION [LITERATUURVERZICHT SCHEEPSBOUW EN SCHEEPVAARTTECHNIEK]

15 Oct. 1965 30 p refs In DUTCH, GERMAN, FRENCH, and ENGLISH /*Its Vol. 10, No. S-175*
CFSTI: HC \$2.00/MF \$0.50

A compilation of abstracts is presented of literature pertaining to shipbuilding and navigation technology. Included are such areas as ship models, resistance and propulsion, strength and vibrations, design and construction, and upkeep and repair. C.T.C.

N66-15904# Library of Congress, Washington, D. C. Aerospace Technology Div.

RE-ENTRY COMMUNICATIONS STUDIES Surveys of Soviet Scientific and Technical Literature

George Steblez 10 Sep. 1965 57 p refs Compilation of abstracts

(ATD-P-65-73; AD-622194) CFSTI: HC \$3.00/MF \$0.50

Abstracts are given for re-entry communication studies for the years 1960 through 1964, published in Soviet open-source literature. TAB

N66-16157*# National Aeronautics and Space Administration, Marshall Space Flight Center, Huntsville, Ala.

1965 PUBLICATIONS BY MATERIALS DIVISION

13 Jan. 1966 25 p refs

(NASA-TM-X-53378) CFSTI: HC \$1.00/MF \$0.50 CSCL 05B

A compilation of annotated abstracts of NASA technical memorandums and MSFC internal notes written by personnel of the Materials Division and released during 1965 is presented. Publication topics covered include material studies in propellants; bonded composite materials; engineering materials; alloys; elastomers; organic materials; explosives; lubricants; and heat carrying materials. L.S.

N66-16184*# National Academy of Sciences—National Research Council, Washington, D. C.

DIELECTRICS—DIGEST OF LITERATURE, VOLUME 28, 1964

H. E. Bussey et al 14 Sep. 1965 369 p refs

(Contract NSR-09-012-902)

(NASA-CR-69880; NAS-NRC-1342) CFSTI: HC \$7.00/MF \$2.00 CSCL 20C

An annotated bibliography on dielectrics, based on a review of the current literature, is divided into ten chapters dealing with (1) *Instrumentation and Measurements*; (2) *Tables of Dielectric Constants, Dipole Moments, and Dielectric Relaxation Times*; (3) *Molecular and Ionic Interactions in Dielectrics*; (4) *Conduction Phenomena in Dielectric Solids*; (5) *Ferroelectric and Piezoelectric Materials*; (6) *High Polymeric Materials*; (7) *Inorganic Dielectrics*; (8) *Applications*; (9) *Insulating Films*; and (10) *The Breakdown of Dielectrics*. Overall reviews are presented for each of these subject headings. The second chapter contains tables which summarize data on the static dielectric constants of inorganic and organic pure liquids and pure solids; dipole moments for inorganic, organic, and metallic and non-metallic-organic compounds as well as complexes and polymers; and unresolved relaxation times for organic compounds.

M.W.R.

N66-16224* Library of Congress, Washington, D. C. Aerospace Technology Div.

LIQUID STATE OF METALS Surveys of Communist World Scientific and Technical Literature

Dimitri Vvedensky 29 Oct. 1965 47 p refs Annotated bibliography

(ATD-B-65-95)

This annotated bibliography was compiled from Soviet-Satellite open sources published 1964-1965. It is the first in a series. The report is divided into two sections with data published in 1964 making up the first and data published in 1965 comprising the second. Information covered includes the following: selenium, iron, chromium, silicon, rare earth elements, nickel, sodium alloys, antimony-bismuth system, copper, cadmium-bismuth alloy, lead-tin alloy, magnetic susceptibility, germanium, liquid metal structure, sulfur, aluminum, electrode polarization, liquid metal self-diffusion, electrotransfer, indium-antimony alloys, temperature resistivity, liquid alkali metals, radiation scattering, melt density, thermochemistry, tin, Hall constant, liquid eutectics, X-ray diffraction analysis, steel, electroconvective diffusion, germanium alloys, electrokinetic effect, titanium, ultrahigh pressure melting, zirconium, aluminum oxide wetting, lead, cobalt-silicon system.

Author

N66-16406* Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).

A REVIEW OF LITERATURE ON NUCLEAR AND REACTOR TECHNOLOGY [LITERATUUROVERZICHT, ATOOMKERN-TECHNIEK EN REACTORKUNDE]

Sep. 1965 28 p refs In DUTCH, ENGLISH, FRENCH, and GERMAN *Its* Vol. 7, no. R-78 CFSTI: HC \$2.00/MF \$0.50

Abstracts of reports relating to nuclear and reactor technology are presented. Work is reported for turbo-machinery for high temperature gas-cooled reactors; moderator materials; projection effects on heat transfer and pressure losses in channel flow; special fabrication techniques for cladding and structural materials; reactor instrumentation; and nuclear fuel element pellet sintering. Also reported are a filter pack technique for the classification of radioactive aerosol by particle size; thermoluminescent and radiophotoluminescent methods for dosimetry; optical properties of titanium dioxide as a reflector for plastic scintillators; and electron-bombardment damage in silicon solar cells. Nuclear safety; radon concentration in air; and technical news are also discussed. L.S.

N66-16443* Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).

REVIEW OF LITERATURE IN METEOROLOGY AND CLIMATOLOGY [LITERATUUROVERZICHT METEOROLOGIE] KLIMATOLOGIE]

16 Oct. 1965 28 p In DUTCH, GERMAN, and ENGLISH *Its* Vol. 11, No. M-131 CFSTI: HC \$2.00/MF \$0.50

Abstracts are presented on radio astronomy, meteorological satellites, cloud and terrestrial albedo determinations from Tiros photography, precipitation, forecasting, weather, air contamination, storm detection, lightning discharge, hurricane seeding experiments, circulation, turbulence, atmospheric, and related meteorological subjects. E.E.B.

N66-16444* Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).

REVIEW OF LITERATURE IN GENERAL MANUFACTURING [LITERATUUROVERZICHT ALGEMENE WERKTUIGBOUW]

25 Sep. 1965 31 p In DUTCH, GERMAN, and ENGLISH *Its* Vol. 3, No. AW-26

CFSTI: HC \$2.00/MF \$0.50

Abstracts are presented on diesel engines, steam plants, gas dynamics, diffusion welding, ultrasonics, lubricants, metallurgy, supercooling of hydrazine, thermodynamics, and structural dynamics. Also, an article on a simple semi-automatic welding process used extensively in Japan is included. E.E.B.

N66-16452* Technisch Documentatie en Informatie Centrum Voor de Krijgsmacht, The Hague (Netherlands).

GROUNDWATER POLLUTION AND WASTE WATER PURIFICATION [BIBLIOGRAFIE GRONDWATERVERONTREINIGING EN AFVALWATERZUIVERING] Bibliography

G. De Vries Jun. 1965 88 p In DUTCH, GERMAN, and ENGLISH

(TDCK-42563) CFSTI: HC \$4.00/MF \$0.75

This bibliography is meant as an introduction to literature on the subject of ground water pollution and waste water purification. It contains: abstracts from articles and reports; a list of Dutch institutions engaged in water purification and the quality of open water and ground water in Holland; and a list of the most important periodicals on this subject.

Author

N66-16477# Dynamic Science Corp., South Pasadena, Calif.
AFOSR 17TH CONTRACTORS' MEETING ON LIQUID PROPELLANT ROCKET AND AIR-BREATING COMBUSTION RESEARCH Compilation of Abstracts

8 Jul. 1964 34 p refs Meeting held 6-8 Jul. 1964
 (Contract AF 49(638)-1151)
 (AFOSR-64-0258; AD-623846) CFSTI: HC \$2.00/MF \$0.50
 Abstracts of 26 papers are presented. TAB

N66-16485# Library of Congress, Washington, D. C. Aerospace Technology Div.
STRUCTURE OF ORGANIC CRYSTALS (SURVEYS OF SOVIET SCIENTIFIC AND TECHNICAL LITERATURE)
Annotated Bibliography
 Victor Seemann 30 Dec. 1965 23 p refs
 (ATD-65-104)

An annotated bibliography of research studies on organic crystal structure is presented. The bibliography is based on Soviet open-source materials available at the Aerospace Technology Division and other divisions of the Library of Congress. Entries contain brief annotations indicating the method of investigation, equipment used, and resulting data. Materials investigated include: dinitronaphthalene, quasiaromatic copper complexes, alpha-pinene molecules, polyacrylonitrile, diacidodiethylenediamine compounds, viscose cord fiber, pepsin, liquid crystals, Rochelle salt, polytrifluorochloroethylene, 1-phenylalanine hydrochloride, biferrocenyl structure, polybenzimidazoles, pentaerythritol, dinitroalkanes, diurenes, diguanidines, cellulose nitrates, dicyandiamide, cellulose ethers, polypropylene spherulites, ferrocenedisulfonyl chloride, stearates of Co(II) and Ni(II), and diphenylmercury. Appendices containing indices of authors and associations are also included. M.R.W.

N66-16490# Autonetics, Downey, Calif.
DIGITAL MAGNETIC RECORDING Selected Bibliography, 1959-Jun. 1965
 C. F. G. Lyau and Vivian J. Mungle 31 Aug. 1965 49 p refs
 (T5-1585/3111; AD-469876)

This selected bibliography is prepared to provide readily available information on digital magnetic recording techniques and materials in support of the MEM-BRAIN Disk File Internal Research and Development Program. This program consists of the development of a two gigabit mass storage device. The main topics covered in the literature search are: Magnetic Recording Techniques, Magnetic Recording Materials, Magnetic Recording Heads, and Disk-Drum File Applications. This bibliography contains 129 references which include reports, papers and periodical articles covering the period from 1959 through June 1965. Author (TAB)

N66-16507 Kansas State Univ., Manhattan. Dept. of Psychology.
BEHAVIOR IN UNUSUAL ENVIRONMENTS
 William Bevan *In its Evaluation of Perceptual Frames of Reference* Nov. 1965 56 p refs Submitted for Publication (See N66-16506 07-04) CFSTI: HC \$4.00/MF \$1.00 (TR-33)

The concept of environment, as it has been understood by psychologists during the past half century, is examined, and a substantive review of the pertinent literature during the last decade is provided. Environmental properties that have characterized the psychologist's use of the term in theoretical formulations and investigational practice are considered. Empirical relationships that exist between behavior and unusual environments are also discussed. It is

pointed out that while environment as a concept has achieved a degree of formal articulation, it lacks systematic versatility; there are few clearly established bridges between its place in psychological theories and in the empirical practices of the psychological investigator. The value of focusing attention on environment as a variable in observational situations, and as a systematic concept is also pointed out. A comprehensive bibliography is included. M.G.J.

N66-16508 Kansas State Univ., Manhattan. Dept. of Psychology.
VISION IN THE GANZFELD
 Lloyd L. Avant *In its Evaluation of Perceptual Frames of Reference* Nov. 1965 23 p refs Submitted for Publication (See N66-16506 07-04) CFSTI: HC \$4.00/MF \$1.00 (TR-34)

A summary of the evidence on exposure to structureless visual fields is presented. The data show the experience of such fields to be characterized by reports of immersion in a sea of light which separates into figure and ground as brightness is increased, chromatic adaptation in colored fields, loss of efficiency in detecting the presence and movement of inhomogeneities introduced into the field, disorientation of the observer, an increased and fluctuating state of accommodation, and the occasional joint occurrence of an apparent cessation of function of the visual mechanism and increased alpha activity in the brain. Author

N66-16566*# National Aeronautics and Space Administration, Washington, D. C.
EXTRATERRESTRIAL LIFE—A BIBLIOGRAPHY. PART II: PUBLISHED LITERATURE, 1900-1964
 Dec. 1965 345 p refs
 (NASA-SP-7015) GPO: HC \$2.00; CFSTI: MF \$1.75 CSCI 06C

An annotated bibliography of articles and books on extraterrestrial life published during the period 1900 to 1964 is presented. Although the bibliography is primarily concerned with the general subjects of extraterrestrial life and exobiology, its scope also makes provision for several particular topics that are directly pertinent to the search for extraterrestrial life. Included among these are the origin of life on earth, the suitability of other planets for the development of indigenous life, the possibility of intelligent extraterrestrial life forms, techniques and instrumentation for the detection of extraterrestrial life, the chemical basis of life including the synthesis of organic compounds from simple precursors, and terrestrial contamination of spacecraft. Several references which describe the examination and analysis of meteorites and the relevance of such studies to the subject of extraterrestrial life are also presented. C.T.C.

N66-16734# IIT Research Inst., Chicago, Ill.
PHYSICS AND NONDESTRUCTIVE TESTING
 R. S. Krogstad et al [1965] 12 p Papers presented at the Symp. on Physics and Nondestructive Testing, Dayton, Ohio, 28-30 Sep. 1965
 (AD-624582) CFSTI: HC \$1.00/MF \$0.50

Presented are abstracts on the following: *Holograms; Electron Emission During Metal Fatigue; Advanced Metal Matrix Composites; Use of the Microprobe Analyzer to Assist NDT Investigations; Surface Residual Stress by Means of Rayleigh Waves; Microfocus Radiography; Optimizing Defect Detection in High Energy X-Radiography; A Comparison Between Thermal, Epithermal, and Subthermal Neutrons for Radiography; The Physics and Chemistry of Color Photography; Optics and*

Infrared Nondestructive Testing; Reducing Emissivity Errors in Infra-Red Detecting Systems; The Nondestructive Testing of Solid Propellant Rocket Motors; and Inspecting Thin Sheet Using Lamb Wave Spectrum Analysis. E.E.B.

N66-16745# Lincoln Lab., Mass. Inst. of Tech., Lexington. **SOLID STATE RESEARCH, 1 May-31 July 1965**

4 Nov. 1965 87 p refs

(Contract AF 19(628)-5167)

(ESD-TDR-65-318; AD-624611) CFSTI: HC \$3.00/MF \$0.75

The report covers in detail the solid state research work at Lincoln Laboratory for the period 1 May 1965 through 31 July 1965. The topics covered are Solid State Device Research, Laser Research, Materials Research, and Physics of Solids.

Author (TAB)

N66-16758# Library of Congress, Washington, D. C. Aerospace Technology Div.

SOVIET RESEARCH IN PLASMA PHYSICS Surveys of Soviet Scientific and Technical Literature

Frederick Pindy 5 Oct. 1965 212 p refs Compilation of Abstracts

(ATD-P-65-82)

Abstracts are presented on the following subjects: *Stability and Oscillations; Shock Waves; Electromagnetic Fields; Diagnostics; Containment; Production and Manipulation; Astrophysics; Magnetohydrodynamics; and Plasma Waveguides.*

E.E.B.

N66-16933# Library of Congress, Washington, D. C. Aerospace Technology Div.

PROBLEMS OF SPACE BIOLOGY (USSR), VOLUME 4, NO. 91, 2 NOVEMBER 1965 Compilation of Abstracts

[1965] 127 p refs A.T.D. Press Spec. Issue

A compilation of abstracts from Soviet literature on problems of space biology are presented. Included are articles on cosmonaut training; space psychology; spaceflight trainers; effect of acclimatization at high altitudes on hypoxia resistance; flight clothing; hygiene; bioprocessing human wastes; cosmonaut immunity and autoflora; isolation and hypokinesia effects; prolonged hypokinesia effect on human resistance to acceleration; physiological effects of partial restraint on monkeys; physiological effects of ammonia, CO, CO₂, and increased O₂; atmosphere selection by animals; helium-oxygen atmospheres; automatic control of plant physiology in closed systems; aeroponic cultivation of cabbage in closed system; higher plants as spaceflight biosensors; *Chlorella* nutrition; ultraviolet irradiation of plants; anti-radiation compounds; radiation effects on animals; biological effects of vibration; noise effect on auditory sensitivity; weightlessness rotation effects on human physiology; human reactions to impacts; methods of measuring blood flow and nerve currents; automatic analysis of EEG's; phonetic speech analysis; information theory and physiological flight data; lip-reading for spacecrew communication; recording tongue movements in speech; and man-machine speech communication.

R.N.A.

N66-16945# Library of Congress, Washington, D. C. Aerospace Technology Div.

COMPOUND SEMICONDUCTORS Surveys of Communist World Scientific and Technical Literature

Boris Ofrossimow 30 Dec. 1965 79 p refs (ATD-65-99)

This analytical survey is based on Soviet-Satellite open sources published 1963-1964. It is the first report in this

series and it consists of a foreword, an analysis of data for the entire year 1963, and an annotated bibliography with 139 entries. Section 1 of the bibliography (AIII BV compounds) is comprised of 46 entries, Section 2 (AII BV compounds) of 70 entries, and Section 3 (AIV BV compounds) of 3 entries. There are 3 appendixes: (1) Topic Tags Index; (2) Author Index; (3) Associations Index. The following compounds are covered: indium phosphide, indium antimonide, gallium antimonide, gallium arsenide, gallium phosphide, aluminum nitride, cadmium telluride, gallium nitride, indium nitride, boron phosphide, cadmium selenide, cadmium sulfide, mercury sulfide, zinc sulfide, zinc telluride, mercury telluride, and silicon carbide. According to the analyst the following trends have become apparent: (1) the number of studies made by non-centrally located scientific institutions has increased at the expense of the central institutes; (2) a certain specialization of research institutions is apparent; (3) new facilities are being developed.

Author

N66-16980# Villanova Univ., Pa.

A BIBLIOGRAPHY ON DIGITAL COMPUTER-AIDED CIRCUIT ANALYSIS AND DESIGN

Tsute Yang [1965] 28 p refs

(Grant NGR-39-023-004)

(NASA-CR-70211) CFSTI: HC \$2.00/MF \$0.50 CSCL 09C

This bibliography lists pertinent literature on computer-aided techniques and programs directly connected with circuit analysis and design. The entries are arranged in the alphabetic order of the last name of the first author of each paper. A subject index and a chronological index are appended. Author

N66-17086# Jet Propulsion Lab., Calif. Inst. of Tech., Pasadena.

INTERACTIONS OF SPACECRAFT AND OTHER MOVING BODIES WITH NATURAL PLASMAS

Carol K. Sterkin Dec. 1965 198 p refs

(Contract NAS7-100)

(NASA-CR-70362; JPLAI/LS-541) CFSTI: HC \$5.00/MF \$1.50 CSCL 201

A compilation of abstracts is presented on data concerning the interactions of a moving spacecraft (satellite, rocket, or missile) with the surrounding ionized medium: ionosphere, magnetosphere, or interplanetary plasma. Although most of the abstracts concern spacecraft phenomena, related ionospheric instrumentation, and data, the search also includes literature on interactions of other types of moving man made bodies and on similar natural phenomena. The material is presented under the following main headings: spacecraft, aircraft, small projectiles, celestial bodies, interplanetary matter, ionospheric research and related subjects, and selected references on related subjects.

C.T.C.

N66-17246# National Aeronautics and Space Administration, Goddard Space Flight Center, Greenbelt, Md.

A BIBLIOGRAPHY OF MULTIPLE NIGHTLY OBSERVATIONS OF COMET TAILS

Stephen Plagemann (Maryland Univ.) Sep. 1965 18 p refs (Grant NSG-695)

(NASA-TM-X-55370; X-612-65-362) CFSTI: HC \$1.00/MF \$0.50 CSCL 03B

A bibliography of nightly observations of comet tails from astronomical literature over the past 70 years, concentrating on studies which include more than one photograph per night is presented. The bibliographies hopefully will provide the observational basis of a study of the short term behavior of comet tails. The references listed are by the

name of the comet in chronological order. In addition to the usual bibliographic information, a short statement beneath each reference was designed to give an idea of the number of plates available over a certain time period; and the name of the observatory where the plates are located is included. L.S.

N66-17277* National Aeronautics and Space Administration, Washington, D. C.

BIBLIOGRAPHY ON WELDING METHODS, WITH INDEXES
Feb. 1966 58 p refs

(NASA-SP-5024) CFSTI: HC \$1.00/MF \$0.50 CSCL 13H

A bibliography with abstracts is presented on the applications and uses of various welding methods, encompassing arc welding, diffusion welding, electron beam welding, fusion welding, spot welding, and ultrasonic welding. Subject and author indices are included. D.T.

N66-17299* Autonetics, Anaheim, Calif.

MICROELECTRONICS AND MATERIALS IN THE VACUUM ENVIRONMENT OF SPACE Selected Bibliography

Vivian J. Mungle 27 Aug. 1965 118 p refs

(T5-1559/3111; AD-469576)

This bibliography consists of 204 references and is directed toward the specific aspects of space environment hard vacuum and radiation as these environments affect microelectronics and covers only the years 1963, 1964, and the first half of 1965. Principal sources consulted were Technical Abstract Bulletins (DDC), Scientific and Technical Aerospace Reports (NASA), International Aerospace Abstracts, and Applied Science and Technology Index. Author (TAB)

N66-17358* National Aeronautics and Space Administration, Washington, D. C.

BIBLIOGRAPHY ON SOLID LUBRICANTS, WITH INDEXES
Feb. 1966 34 p

(NASA-SP-5037) CFSTI: HC \$1.00/MF \$0.50 CSCL 11H

An annotated bibliography from the collections of TPA, STAR, and IAA entries, covering the years 1962 to 1964, designed to assess and identify literature on the applications and uses of solid lubricants is presented. A subject index and personal author index are included. L.S.

N66-17359* National Aeronautics and Space Administration, Washington, D. C.

BIBLIOGRAPHY ON ELECTROMECHANICAL TRANSDUCERS, WITH INDEXES

Feb. 1966 44 p

(NASA-SP-5036) CFSTI: HC \$1.00/MF \$0.50 CSCL 14B

An annotated bibliography from the collections of TPA, STAR, and IAA entries, covering the years 1962 to 1964, designed to assess and identify literature on the applications and uses of electromechanical transducers is presented. A subject index and personal author index are included. L.S.

N66-17385* International Geophysical Year World Data Center A, Washington, D. C.

ROCKETS AND SATELLITES Catalog of Data, 1 Jan.-30 Jun. 1965

Sep. 1965 28 p refs Sponsored by NSF

Sounding rocket data of launchings by Canada, India, Japan, New Zealand, Norway, Pakistan, United Kingdom, and the United States are tabulated. Also, launchings of artificial earth satellites and space probes for scientific purposes and

miscellaneous observations of satellites by visual, photographic, and radio methods are also presented. A bibliography on related subjects is included. E.E.B.

N66-17396* Aviation Safety Engineering and Research, Phoenix, Ariz.

SYNTHESIS OF AIRCRAFT (CRASH) FIRE, RESCUE, AND EVACUATION TECHNOLOGY

H. G. C. Henneberger, H. F. Roegner, and L. Cambeis Washington, FAA, Jul. 1964 267 p refs

(Contract FA-WA-4458; Proj. SAFRET)

(ADS-16)

An information retrieval system is described for literature dealing with postcrash aircraft fire, rescue, and evacuation. The system uses a code book, an IBM tab run, and a bibliography with an abstract for each document. The user can find a code number for the specific area of interest, identify the applicable documents, and then read the abstracts to determine which documents he would like to acquire. The system is capable of indexing specific items and requires no manipulation of IBM cards to identify needed references. Major indexing categories are hazard exposure, design, test and analysis, and human factors. M.W.R.

N66-17475* California Inst. of Tech., Pasadena. Graduate Aeronautical Labs.

LITERATURE SURVEY ON THE BUCKLING OF CONICAL SHELLS

Shigeo Kobayashi Jan. 1966 51 p refs

(Grant Nsg-18-59)

(NASA-CR-70457) CFSTI: HC \$3.00/MF \$0.50 CSCL 20K

A literature survey which represents a comprehensive review of the state-of-the-art of conical shell instability is given. The bibliography is arranged in alphabetical form and is categorized according to loading conditions. Certain key equations used by the authors are indicated. C.T.C.

N66-17584* National Aeronautics and Space Administration, Washington, D. C.

CUMULATIVE INDEX TO NASA TECH BRIEFS, 1963-1965
Feb. 1966 138 p refs

(NASA-SP-5021(02)) CFSTI: HC \$1.00/MF \$1.00 CSCL 05B

The technological innovations published during the period from 1963 through 1965 are listed. The annotated bibliography is divided into the major divisions: *Electrical (including Electronics); Energy Sources; Materials; Life Sciences; and Mechanical*. A subject index, originating source index, and a category index are included. E.E.B.

N66-17599* Rio Grande do Sul Univ., Porto Alegre (Brazil). Instituto de Fisica.

APPLICATION OF METHODS COMMON TO ELEMENTARY PARTICLE PHYSICS AND MANY-BODY PROBLEMS Final Report

Gerhard Jacob, comp. Nov. 1965 10 p refs

(Grant DA-ARO-49-092-64-G53)

(Rept.-1; AD-624396) CFSTI: HC \$1.00/MF \$0.50

Work in progress is summarized. Papers on following subjects have been or are being published: Nonspherical Nuclei; Quasi-Free Scattering and Nuclear Structure; Width of nuclear-hole states; Single hole energies; Relaxation effects in angular correlations; Quantum Electrodynamics with Zero Bare Fermion Mass; Generalization of Landau Gauge; Broken Symmetries and Electron-Muon Problem (I and II); Length Scale in Quantum Electrodynamics without a Bare Mass. TAB

N66-17603# Washington Univ., Seattle. Dept. of Atmospheric Sciences.

[ATMOSPHERIC, EARTH AND OCEANOGRAPHIC RESEARCH] Annual Report No. 5, 1 Nov. 1964-31 Oct. 1965

Phil E. Church et al 1 Dec. 1965 30 p refs

(Contract Nonr-477(24) Grant NSF GP-2971)

(AD-624294) CFSTI: HC \$2.00/MF \$0.50

Research programs include radiation, carbon dioxide, ozone, sea ice physics, and micro-oceanography.

Author (TAB)

N66-17738 Joint Publications Research Service, Washington, D. C.

INTERNATIONAL CONFERENCE ON METEOROLOGY OF THE STRATOSPHERE AND MESOSPHERE

K. Ya. Kondrat'yev and Ye. G. Shviokovskiy /In its Transl. from Meteorol. i Gidrol. (No. 9, 1965) 29 Oct. 1965 p 50-58 (See N66-17735 08-20) CFSTI: \$3.00

Several papers presented at the scientific conference are briefly reviewed. Subject matter covered the dynamics and energy of general atmospheric circulation; hydrodynamic equations applicable to the stratosphere and mesosphere; measurement methods for observing wind and temperature structure in the stratosphere and mesosphere; photochemical processes in upper layers of the atmosphere; ozone investigations, formation, and measurements; noctilucent clouds; radiation transport in the atmosphere; radiant heat flux computations; cosmic dust diffusion; large scale turbulent diffusion in the upper layers of the atmosphere; and moisture content measurement methods.

M.G.J.

N66-17886* National Aeronautics and Space Administration, Washington, D. C.

AEROSPACE MEDICINE AND BIOLOGY—A CONTINUING BIBLIOGRAPHY, WITH INDEXES, JANUARY 1966

Feb. 1966 113 p refs

(NASA-SP-7011(21)) CFSTI: HC \$1.00/MF \$0.75 CSCL 06E

A continuing bibliography on aerospace medicine and biology presents annotated references to unclassified reports and journal articles that were introduced into the NASA information system during January 1966. Indexes by subject, corporate source, and author are included.

M.W.R.

N66-17913# Japan Atomic Energy Research Inst., Tokyo. **SURVEY OF NEUTRON CROSS SECTIONS REPORTED FOR Z ≥ 93**

Sin-Iti Igarasi and Masaki Yamamoto Mar. 1965 35 p refs In ENGLISH and JAPANESE (JAERI-4032)

A survey of the experimental data of neutron cross sections, resonance parameters, etc. for Np, Pu, Am, Cf, Fm, Es, and Cm is presented. Experimental method, energy range, accuracy of data, and remarks are briefly described for each individual reference. The data are also listed in tabular form, classified by nuclide. 119 references.

Author (NSA)

N66-18062# Library of Congress, Washington, D. C. Special Bibliographies Section.

AIR FORCE SCIENTIFIC RESEARCH BIBLIOGRAPHY, 1959, VOLUME III

G. Vernon Hooker, Doris C. Yates, Harvey D. Brookins, and Aaron S. Dann 1965 746 p refs Sponsored by AFOSR (AFOSR-700-III) GPO: \$4.75

This is the third volume of a continuing bibliographic series which includes abstracts of all technical reports, journal

articles, books, symposium proceedings, and monographs produced and published by scientists supported in whole or in part by the Air Force Office of Scientific Research (AFOSR) in 1959. The AFOSR supports fundamental research in the five major scientific disciplines: physics, chemistry, engineering sciences (subsuming mechanics and propulsion); life sciences (both biological and behavioral, but not medical), and mathematics (including the information sciences). A detailed subject index, arranged alphabetically, and a special subject classification for mathematics are included in the bibliography. In addition, there are a contract index, an AFOSR control number index, and a personal author index.

R.R.D.

N66-18285# Oak Ridge National Lab., Tenn.

A SURVEY OF THE LITERATURE ON HYDRATED ACTINIDE OXIDE SOLS AND U(IV) AND U(VI) HYDROLYSIS REACTIONS Bibliography

D. M. Helton 5 Feb. 1965 26 p refs

(Contract W-7405-ENG-26)

(ORNL-TM-1052) CFSTI: HC \$2.00/MF \$0.50

This bibliography covers the following topics: (a) all available data relating to the preparation and applications of sols of hydrated actinide oxides as nuclear fuels; and (b) uranium (IV) and uranium (VI) hydrolysis reactions. The bibliography was compiled from a search of project literature, patents, and Chemical Abstracts through June, 1964. The entries are cross-referenced and are listed alphabetically by author. Patents are listed under the name of the issuing country. Journal abstracts of articles, when available, are used in the annotations. Author and subject indexes are given.

Author (NSA)

N66-18316* Massachusetts Inst. of Tech., Brookline.

GLIA BIBLIOGRAPHY, 1960-1964

Margaret S. Little and Joan Morris [1965] 328 p refs Its Neurosciences Res. Program Bull., v. II, no. 6, Nov.-Dec. 1964, Suppl. I

(Grants NSG-462; NIH G-GM-10211-03; Nonr(G)-00089-64)

(NASA-CR-70631) CFSTI: HC \$7.00/MF \$1.75 CSCL 06P

This bibliography lists about 1100 published references to the world literature on glia cells. It covers publications on glial development, structure, function, pathology and "ultrastructure".

G.G.

N66-18448* National Aeronautics and Space Administration, Washington, D. C.

CONFERENCE ON ELEMENTARY BIOLOGICAL SYSTEMS AND ON BIOGENESIS [COLLOQUE SUR LES SYSTEMES BIOLOGIQUES ELEMENTAIRES ET LA BIOGENESE]

Jan. 1966 65 p refs Transl. into ENGLISH of abstr. of papers presented at the Conf. on Elementary Biol. Systems and on Biogenesis, Paris, 23-25 Nov. 1965

(NASA-TT-F-9863) CFSTI: HC \$3.00/MF \$0.75 CSCL 06C

Brief resumés of papers on elementary biological systems and biogenesis are given, including geological, physical, chemical, and philosophical aspects of the origin of life. Some papers attempt explanations of biogenesis based on metaphysical theories and speculative application of Darwin's postulates. The problems of extraterrestrial life based on meteorite studies, evolution of terrestrial atmospheric composition, electronic factors in biochemical evolution, ultrastructure of chloroplasts and mitochondria, geological factors in biogenesis, deterministic views on cosmology, etc. are covered.

Author

N66-18491# Harvard Univ., Cambridge, Mass. Div. of Engineering and Applied Physics.

[CRYSTALLIZATION OF BORON AND SILICON COMPOUNDS UNDER PRESSURE, X-RAY DIFFRACTION OF CERAMIC SYSTEMS, STUDIES ON SILICA BASE GLASSES, AND RELATED STUDIES] Progress Report, Sep. 1, 1964-Sep. 1, 1965

David Turnbull Sep. 1965 7 p refs

(Contract Nonr-1866(50))

(PR-2; AD-625421) CFSTI: HC \$1.00/MF \$0.50

Topics include: Crystallization of B_2O_3 under pressure; Crystallization of SiO_2 under pressure; Hot stage for X-ray diffraction of ceramic systems; Melting of B_2O_3 crystals; Kinetics of devitrification of fused silica; Growth and melting of crystals of GeO_2 ; Structure and phase separation in thin sections of silica base glasses. TAB

N66-18502# California Univ., Berkeley. Electronics Research Lab.

PLASMA RESEARCH Quarterly Progress Report, 1 Apr.-30 Jun. 1965

Jun. 1965 65 p refs

(Contract AF 33(615)-1078; Grants AF-AFOSR-139-65; NSF GA-2239)

(QPR-2; AD-625424) CFSTI: HC \$3.00/MF \$0.75

This research in plasmas is part of an integrated program of research and teaching in the problems of creation, containment, heating, stability, radiation, and measurement of the physical and electromagnetic properties of high- and low-temperature plasmas. The basic high-temperature plasma research facility consists of a 250,000-joule capacitor energy-storage system and related electronic control and safety equipment. This bank operates two basic experiments each of which requires pulse magnetic fields in excess of 50,000 gauss. TAB

N66-18549# Geotechnical Corp., Garland, Tex.

ARRAY LITERATURE Bibliography, 1955-1965

9 Nov. 1965 52 p refs

(Contract AF 33(657)-12145)

(TR-65-114; AD-626405) CFSTI: HC \$3.00/MF \$0.50

A bibliography of available literature on array technology has been compiled, embracing the disciplines of seismology, acoustics, and radio. Over one hundred articles from various scientific journals are listed. Most of the articles are abstracted and are grouped according to a major category. Field of Application, and a subcategory, Character of Content. The majority of the articles were published during the period 1955-1956. Author (TAB)

N66-18565# Harry Diamond Labs., Washington, D. C.

FLUERICS (FLUID AMPLIFICATION) Bibliography

30 Aug. 1965 158 p refs

(TR-1304; AD-625885) CFSTI: HC \$5.00/MF \$1.00

A bibliography of flueric (fluid amplifier) devices and theory is presented with abstracts for the majority. The bibliography includes 376 titles on fluid devices, fluid circuits, sensors and transducers, instrumentation and flow visualization, fabrication, patents and disclosures, and other directly applicable technology. It also includes titles on related topics such as jets; vortex flow; pipes, passages, and diffusers; and vibration and acoustic effects. Author (TAB)

N66-18582# Systems Technology, Inc., Hawthorne, Calif.
EFFECTS OF NONLINEARITIES ON HUMAN OPERATOR TRACKING PERFORMANCE: A REVIEW OF THE LITERATURE Final Report, Sep. 1964-May 1965

Richard J. Wasicko and Raymond E. Magdaleno Wright-Patterson AFB, Ohio, AMRL, Oct. 1965 50 p refs

(Contract AF 33(615)-1782)

(AMRL-TR-65-158; AD-626036) CFSTI: HC \$2.00/MF \$0.50

Available literature on the effects of system nonlinearities on human operator tracking performance is summarized. The reviewed reports include experimental investigations in the technical areas of human engineering and aircraft handling qualities. Pertinent information is presented on experimental details, types of nonlinearities and other experimental variables tested, and primary results; and it is concluded that the general state of knowledge in this area is unsatisfactory. Several nonlinearities (such as actuator rate limiting) important in aircraft manual control systems have not been experimentally investigated, and there is inadequate data on the influence of forcing function characteristics. Author (TAB)

N66-18653# Army Missile Command, Huntsville, Ala. Aerodynamics Branch.

MICROWAVE (ROTATIONAL) SPECTROSCOPY Bibliography

James E. Wollrab 4 Aug. 1965 106 p refs

(RD-TM-65-14; AD-625846) CFSTI: HC \$4.00/MF \$0.75

The references listed in the bibliography include a majority of the important papers and books that are related to the development of microwave spectroscopy. General references relating to the basic concepts of rotational and, in a limited way, vibrational spectroscopy are also included. The references have been placed under specific topic headings whenever possible. A chronological order under these headings is maintained. Author (TAB)

N66-18767# Atomic Energy Commission, Washington, D. C. Div. of Biology and Medicine.

TERRESTRIAL AND FRESHWATER RADIOECOLOGY A Selected Bibliography (Supplement 3)

Alfred W. Klement, Jr. and Vincent Schultz Feb. 1965 119 p refs

(TID-3910, Suppl. 3) CFSTI: HC \$2.50/MF \$0.75

A list is presented of 1207 publications in the field of radioecology, including the biological aspects of radioactive fallout, waste disposal, terrestrial radioecology, and freshwater radioecology. An attempt was made to reference publications related to the field or laboratory studies of wild species of plants and animals with respect to radiation effects or metabolic studies involving radionuclides. Complete information concerning reference sources and brief content notes are included. NSA

N66-19086# International Union of Pure and Applied Chemistry, Basle (Switzerland). Commission on High Temperatures in Gases and on Plasma Chemistry.

BIBLIOGRAPHY ON THE HIGH TEMPERATURE CHEMISTRY AND PHYSICS OF GASES AND PLASMAS

L. Brewer (Calif. Univ., Berkeley) and N. Manson (Poitiers Univ.) 31 Dec. 1965 34 p refs Prepared in cooperation with Natl. Bur. of Std.

(Rept.-17) Available from Natl. Bur. of Std., Washington, D. C.

A bibliography is presented on spectroscopy of interest to high temperature chemistry, reactions between gases and condensed phases, and thermodynamics of plasmas. R.N.A.

N66-19164# Centre National de Recherches de l'Espace, Brussels (Belgium).

LOW AND VERY LOW LEVEL DC AMPLIFIERS. PART V: LITERATURE AND REFERENCES

*Paul Ville Jun. 1964 40 p refs *Its Notes Preliminaires No. 45* CFSTI: HC \$2.00/MF \$0.50

A chronological list and abstracts of references which directly relate to the theory and design of low and very low level d-c amplifiers and modulators are presented. M.R.W.

N66-19181# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).

SATELLITE-NAVIGATION, TRANSIT-SECOR Bibliography
H. J. Bos, comp. Oct. 1965 84 p refs
(TDCK-43209) CFSTI: HC \$3.00/MF \$0.75

This bibliography contains a literature-survey, comprising 125 abstracts of articles, published papers and reports on the subject of satellite-navigation, navigational satellites and geodetic satellites. The available material is presented chronologically in six chapters. A historical review and a summary of technical details is included. Author

N66-19399# Library of Congress, Washington, D. C. Aerospace Technology Div.

LIQUID STATE OF METALS—ANNOTATED BIBLIOGRAPHY Surveys of Communist World Scientific and Technical Literature, Jan. 1964–Aug. 1965

Dimitri Vvedensky 29 Oct. 1965 44 p refs
(ATD-B-65-95; AD-626598) CFSTI: HC \$2.00/MF \$0.50

This annotated bibliography was compiled from Soviet Satellite open sources published 1964–1965. It is the first in a series. The report is divided into two sections with data published in 1964 making up the first and data published in 1965 comprising the second. Information covered includes the following: selenium, iron, chromium, silicon, rare earth elements, nickel, sodium alloys, antimony-bismuth system, copper, cadmium-bismuth alloy, lead-tin alloy, magnetic susceptibility, germanium, liquid metal structure, sulfur, aluminum, electrode polarization, liquid metal self-diffusion, electrotransfer, indium-antimony alloys, temperature resistivity, liquid alkali metals, radiation scattering, melt density, thermochemistry, tin, Hall constant, liquid eutectics, X-ray diffraction analysis, steel, electroconvective diffusion, germanium alloys, electrokinetic effect, titanium, ultrahigh pressure melting, zirconium, aluminum oxide wetting, lead, cobalt-silicon system. Author (TAB)

N66-19472# Stanford Univ., Calif. Microwave Lab.
RESEARCH ON SELECTED MICROWAVE PROPERTIES OF FERRITES Final Report, 1 Apr. 1962–28 Feb. 1965

H. J. Shaw Aug. 1965 25 p refs
(Contract AF 19(628)-342)
(AFCL-65-665; ML-1343; AD-625315) CFSTI: HC \$1.00/MF \$0.50

Controlled steering of a microwave acoustic beam in a ferrite was demonstrated in a YIG rod, where the direction of an acoustic beam was varied by varying the magnitude of a dc magnetic field applied at an angle to the rod axis. Analysis has been made of the frequency passband characteristics of multiple film acoustic transducers for microwave frequencies. The theory of microwave dielectric resonators without conducting walls has been developed, and experimental results on the principal circuit properties of rutile resonators have been obtained. A theory has been developed for mechanisms contributing to the excitation of phonon instabilities in ferrites. A theory has been developed for the coupling efficiency of ferrite disks as magnetostrictive acoustic transducers. Experimental investigations of nickel film magnetostrictive transducers have been performed. Measurements have been made of acoustic attenuation at room temperature in sapphire and rutile, which have disclosed that these materials offer low loss

acoustic wave transmission at microwave frequencies. Theoretical and experimental investigations of second harmonic generation in ferrites have established the upper bounds on conversion efficiency for low loss ferrites. TAB

N66-19640*# Jet Propulsion Lab., Calif. Inst. of Tech., Pasadena.

INTERACTIONS OF SPACECRAFT AND OTHER MOVING BODIES WITH NATURAL PLASMAS

Carol K. Sterkin, comp. Dec. 1965 198 p refs
(Contract NAS7-100)

(NASA-CR-71204; JPLAI/LS-541) CFSTI: HC \$5.00/MF \$1.25 CSCL 201

An annotated bibliography of 829 selected references on astronautics information resulting from a literature search and covering the period 1960 through June 1965 is presented. It is pointed out that recent space exploration has provided data on the interactions of a moving spacecraft (satellite, rocket, or missile) with the surrounding ionized medium—ionosphere, magnetosphere, or interplanetary plasma. The practical aspects of the complex and interrelated electrical and magnetic phenomena are of primary interest. These include electrical hazards to spacecraft; effects on spacecraft communications, tracking, and detection; and effects on measurement of environmental plasma parameters. Although most of the references given concern spacecraft phenomena and related ionospheric instrumentation and data, the search also includes literature on interactions of other types of moving man-made bodies and on similar natural phenomena. The areas covered include spacecraft, aircraft, small projectiles, celestial bodies, interplanetary matter, and ionospheric research and related subjects. The bibliography also contains an author index. R.R.D.

N66-19672# Library of Congress, Washington, D. C. Aerospace Technology Div.

LIQUID AND SOLID PROPELLANTS TECHNOLOGY Surveys of Communist World Scientific and Technical Literature

Edward Wolski 7 Jan. 1966 160 p refs Compilation of abstracts
(ATD-66-2)

Abstracts from the Soviet literature on liquid propellants, solid propellants, high energy fuels, advanced energy sources, and combustion are presented. A total of 214 entries from 53 journals and 15 books are annotated. E.E.B.

N66-19673# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).

BIBLIOGRAPHY OF FACTORY TECHNOLOGY [LITERATUUROVERZICHT WERKPLAATSTECHNIEK]

Jan. 1966 32 p refs In DUTCH, GERMAN, ENGLISH, and FRENCH *Its Vol. 11, Pt. 1*
(W-94) CFSTI: HC \$2.00/MF \$0.50

This bibliography on industrial technology contains brief summaries on: (1) factory management and production engineering; (2) measurements and controls in production processes; (3) overall reliability aspects of machine tooling; (4) technology of drilling and abrasion; (5) electrochemical grinding, shaped-electrode machining and twinning; (6) welding and forming processes; and (7) production and economic considerations in industrial metal working operations.

Transl. by G.G.

N66-19723 Comitato Nazionale per l'Energia Nucleare, Frascati (Italy). Laboratori Nazionali di Frascati.

ACTIVITIES OF THE NATIONAL LABORATORY OF FRASCATI, 1 JULY 1964-30 JUNE 1965 [ATTIVITA DEI LABORATORI NAZIONALI DI FRASCATI DAL 1 LUGLIO 1964 AL 30 GIUGNO 1965]

Oct. 1965 34 p refs In ITALIAN *Its* Notiziario No. 15 (LNF-65/41) CFSTI: HC \$2.00/MF \$0.50

Research activities are reported in the following areas:

- (1) high energy physics; (2) linear accelerator experiments; (3) synchrotron experiments; (4) cryogenics; (5) magnetism; (6) electronics; (7) nuclear technology; (8) dosimetry; and (9) computer programming. A bibliography is included.

Transl. by D.T.

N66-19774# California Univ., Berkeley. Dept. of Engineering.

FLUID MOTION AND SOUND Final Progress Report, 1 May 1959-31 Oct. 1965

Louis Solomon Nov. 1965 11 p refs (Contract Nonr-233(62))

(Rept. 65-49; AD-625087) CFSTI: HC \$1.00/MF \$0.50

A bibliography is presented along with selected abstracts. Areas of study include: (1) vortex sound; (2) random pressure field effects on a flexibility support string; (3) hole tone experiments; (4) low speed edgetones; (5) hydraulic analogies of the Hartmann oscillator phenomenon; and (6) jet flows and edgetones.

D.T.

N66-19804# Istituto Superiore di Sanita, Rome (Italy). Laboratori di Fisica.

THE SEMINAR AT THE PHYSICS LABORATORY DURING THE PERIOD MAY-AUGUST 1965 [IL SEMINARIO DEI LABORATORI DI FISICA NEL QUADRIMESTRE MAGGIO-AGOSTO 1965]

10 Sep. 1965 84 p In ITALIAN; ENGLISH summary Synopsis of the Lectures held at the Phys. Lab. of the Ist. Super. Di Sanita, May-Aug. 1965

(ISS-65/29) CFSTI: HC \$3.00/MF \$0.75

Abstracts of lectures held at the Physics Laboratory from May to August 1965 are presented. Included among the abstracts are: (1) The Effect of Oligonucleotides on the Activity of Tumor DNA Polymerase. (2) The Mossbauer Effect in the Rare Gases and Inclusion Compounds. (3) Luminescence and Photoconductivity in Silver Halides.

R.R.D.

N66-19805# Library of Congress, Washington, D. C. Aerospace Technology Div.

ELECTROMAGNETIC AND ELECTROSTATIC GENERATORS Annotated Bibliography, 1961-Jul. 1965

Jordan V. Randjelovic 15 Nov. 1965 35 p refs Surveys of Soviet Sci. and Tech. Lit.

(ATD-65-103)

An annotated bibliography is presented of Soviet developments in electromagnetic and electrostatic generators, electric motors and machines, and associated technology. Arranged in chronological order, the data were taken from four open source journals published between 1961 and 1965.

M.W.R.

N66-19926# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands). **THE ART OF MILITARY CONSTRUCTION—SURVEY OF LITERATURE [KRIJGSBOUWKUNDE—LITERATUUR-VERZICHT]**

4 Feb. 1966 20 p refs In DUTCH, GERMAN, and ENGLISH *Its* Vol. 8, No. K-81

CFSTI: HC \$1.00/MF \$0.50

Abstracts and bibliographic notes are included on the topics of ground mechanics and foundation techniques, roads, airports, photogrammetry and land geometry, civilian utility buildings, construction, building physics, and steel buildings, atomic-biologic-chemical warfare (including general results, shock waves, fallout, and protective constructions), and application of the moire method.

Transl. by J.O.

N66-19933# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).

AIR FLIGHT TECHNOLOGY—SURVEY OF LITERATURE [LUCHTVAARTTECHNIEK LITERATUURVERZICHT]

26 Jan. 1966 33 p refs In DUTCH, FRENCH, ENGLISH, and GERMAN *Its* Vol. 14, No. L-290 CFSTI: HC \$1.00/MF \$0.50

Abstracts and bibliographic notes are included on the topics of model descriptions, airplane properties and achievements, propulsion, board systems and instruments, steering, airports, navigation and air traffic control, safety, aerodynamics, strength and vibration research, air cushion vehicles, helicopter problems, and bird-impact testing.

Transl. by J.O.

N66-19934# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).

SHIP BUILDING AND NAVIGATION TECHNOLOGY—SURVEY OF LITERATURE [SCHEEPSBOUW EN SCHEEPVAART-TECHNIEK LITERATUURVERZICHT]

15 Jan. 1966 37 p refs In DUTCH, ENGLISH, GERMAN, and FRENCH *Its* Vol. 11, No. S-178

CFSTI: HC \$2.00/MF \$0.50

Abstracts and bibliographic notes are included in the categories of ship types, resistance and propulsion, stability, strength computations and vibrations, design, equipment, docks, propulsion installations, ventilation and heating, sound insulation, navigation, rescue techniques, materials,

Transl. by J.O.

N66-19939# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).

ELECTRO-TECHNOLOGY—SURVEY OF LITERATURE [ELECTROTECHNIEK LITERATUURVERZICHT]

21 Jan. 1961 36 p refs In DUTCH, ENGLISH and GERMAN *Its* Vol. 15, No. E-479

CFSTI: HC \$2.00/MF \$0.50

Abstracts and bibliographic notes are included in the categories of telecommunications, radar, electromagnetic radiation, geometry, information processing, analog computers, computers (hardware and software), computer applications, measurement techniques, regulating techniques, miniaturization, oscillators and magnifiers, components and materials, and technical news.

Transl. by J.O.

N66-19973# International Union of Pure and Applied Chemistry, Basle (Switzerland). Commission on High Temperatures and Refractories.

BIBLIOGRAPHY ON THE HIGH TEMPERATURE CHEMISTRY AND PHYSICS OF MATERIALS IN THE CONDENSED STATE, VOLUME 1965, NUMBER 4, OCTOBER, NOVEMBER, DECEMBER 1965

J. J. Diamond, ed. et al [1966] 66 p refs Prepared jointly with NBS

Available from Natl. Bur. Std., Washington, D. C.

This bibliography lists 75 publications in the fields of high temperature chemistry and physics of condensed materials. Primarily considered were devices for achieving temperatures above 1500°C, and properties of materials which melt around 1000°C. G.G.

N66-20095# Polytechnic Inst. of Brooklyn, N. Y. Microwave Research Inst.

[JOINT SERVICES ELECTRONICS PROGRAM] Final Scientific Report, 1 May 1963-30 Apr. 1964

11 Jun. 1965 36 p refs

(Grant AF-AFOSR-453-63)

(PIBMRI-1278-65; AFOSR-65-1493; AD-624297) CFSTI: HC \$2.00/MF \$0.50

The research program includes the five areas of Electromagnetics, Microwave Networks and Techniques, Information Processes, Feedback and Control, and Nonlinear Circuits.

TAB

N66-20167# Library of Congress, Washington, D. C. Aerospace Information Div.

METEORITICS Surveys of Soviet-Bloc Scientific and Technical Literature

2 Jun. 1964 15 p refs compilation of abstracts

(AID-U-64-51; AD-623252) CFSTI: HC \$1.00/MF \$0.50

Abstracts of Estonian studies on meteorites are given, including: the fall of comets and meteorites on the earth; meteorite craters, especially the Kaali and Ilumetsa craters; geophysical, mineragraphic, and chemical studies of craters; and composition of Tamarugal and Yarymlinsk meteorites. Data on the meteorite collection of the Estonian Academy of Sciences are also summarized. N.E.N.

N66-20385# California Univ., Livermore. Lawrence Radiation Lab.

THERMAL RESISTANCE OF CONTACTING SURFACES: HEAT TRANSFER BIBLIOGRAPHY

Carlotta M. Vidoni 17 Jun. 1965 17 p refs

(Contract W-7405-ENG-48)

(UCRL-14264) CFSTI: HC \$1.00/MF \$0.50

A bibliography of approximately 100 references is presented on interface contact resistance and related subjects such as surface heat flux and temperature measurements. The bibliography covers the period 1938 to May 1965 and is arranged alphabetically. NSA

N66-20502# Sloan-Kettering Inst. for Cancer Research, New York.

BIOLOGICAL EFFECTS OF RADIATION, AND RELATED BIOCHEMICAL AND PHYSICAL STUDIES Summary Progress Report, Jul. 1950-15 Mar. 1965

Joan S. Laughlin et al 23 Jun. 1965 196 p refs

(Contract AT(30-1)-910)

(NYO-910-23) CFSTI: HC \$5.00/MF \$1.00

Summaries of research done in the period July 1, 1950 to March 15, 1965, are presented, and bibliographies of publications resulting from research in the period are included. Separate abstracts were prepared for reports on biophysics, biological chemistry, and clinical investigations. NSA

N66-20512# Max-Planck-Institut für Biophysik, Frankfurt am Main (West Germany).

RADIATION EFFECTS ON LIVING TISSUES AND ORGANISMS. SERIES C: BIBLIOGRAPHIES

W. Stahlhofen, comp. Apr. 1965 248 p refs In GERMAN; ENGLISH Summary (AED-C-04-18)

A list is presented of 820 references to recent publications on radiation effects on living tissues and organisms. Author, corporate source, and subject indexes are included. NSA

N66-20643# Little (Arthur D.), Inc., Cambridge, Mass. **INTERNAL WAVES BIBLIOGRAPHY**

Sep. 1965 30 p refs

(Contract NObsr-93055)

(Rept.-4030965; AD-625237) CFSTI: HC \$2.00/MF \$0.50

This bibliography has been prepared as a part of a study of the military implications of internal waves. It includes all papers concerning internal waves in the ocean, given a wide distribution in the United States. Papers given limited distribution have been included when possible. Undoubtedly, many papers concerning references to internal waves or data which can be interpreted in terms of internal waves exist that are not included; however, this bibliography is believed to be complete with respect to papers dealing primarily with internal waves in the oceans. Entries are arranged in alphabetical order by author and date of publication. Author (TAB)

N66-20740# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).

LITERATURE SURVEY ON ELECTROTECHNOLOGY [ELECTROTECHNIEK, LITERATUUROVERZICHT]

7 Feb. 1966 39 p refs In DUTCH, ENGLISH, and GERMAN Its Vol. 15, No. E-480

CFSTI: HC \$2.00/MF \$0.50

Abstracts and bibliographic notes are included on the topics of telecommunications, electronics, electromagnetic radiation, geometry, information processing, computers (software and hardware), computer applications, measurement techniques, control techniques, reduction, interference and reliability, oscillators and magnifiers, components and materials, filters and networks, energy techniques, presentations, and technical news. Transl. by J.O.

N66-20658# George Washington Univ., Washington, D. C. Human Resources Research Office.

SHORT-TERM MEMORY: AN ANNOTATED BIBLIOGRAPHY

Donald Reynolds and Richard D. Rosenblatt Dec. 1965 83 p refs

(Contract DA-44-188-ARO-2)

(HUMRRO-TR-65-13; AD-627394) CFSTI: HC \$3.00/MF \$0.75

The bibliography is divided into 12 areas as follows: (1) Information Theory; (2) Proactive and Retroactive Interference and Interpolated Activities; (3) Set, Subject-Strategies, and Coding Techniques; (4) Paired-Associate Studies; (5) Simultaneous Listening and Memory Span Studies; (6) Rate and Mode of Stimulus Presentation; (7) Rate and Order of Recall, and Serial and Sequential Tasks; (8) Methods, Theory, and Review Articles; (9) Meaningfulness, Degree of Learning, and Stimulus Organization; (10) Age Differences; (11) Comparisons of Short-Term Memory and Long-Term Memory; and (12) Perceptual Studies. There are 170 articles annotated

in the bibliography and extensive cross-indexing to facilitate location of articles. Although the earliest study included is dated 1910, the majority of articles were published in the period from 1959 through 1964. Author (TAB)

N66-20866* # National Aeronautics and Space Administration, Washington, D. C.

SELECTED LISTING OF TECHNOLOGY UTILIZATION PUBLICATIONS

Feb. 1966 23 p refs Including all Tech Briefs through Dec. 1965

(NASA-TM-X-57316) CFSTI: HC \$1.00/MF \$0.50 CACL 13H

This information booklet on technical developments that have general industrial applications includes brief abstracts of the following publications: Advanced bearing technology; reliable electrical connections; space batteries; measurements of blood pressure in the human body; measurement of bird embryo heartbeat with a micrometeorite transducer; selected welding techniques; selected shop techniques; welding for electronic assemblies; low temperature effects on structural materials; precision tooling techniques; technology of inorganic coatings; joining and sealing of dissimilar metals; metal-forming techniques; advanced valve technology; micropower logic circuits; medical and biological applications of space technology; status of magnesium-lithium alloys; elastic orifices for gas bearings; microelectronics in space research; handling of hazardous materials; plasma jet technology; and the electromagnetic hammer. Included is a numbered Tech Brief list that covers electrical (electronic), energy sources, materials (chemistry), and life science publications. G.G.

N66-20984# British Hydromechanics Research Association, Cranfield (England).

A BIBLIOGRAPHY OF HYDRAULIC GATES

T. E. Brock, ed. Sep. 1965 45 p refs

(BIB-20) CFSTI: HC \$2.00/MF \$0.50

References and illustrations dealing with hydraulic gates are presented in a chronological bibliography. Most of the 166 references are papers or sections of books published during the last 15 years, although some earlier references are presented. Many abstracts are given, and both subject and author indexes are included. M.W.R.

N66-20985# British Hydromechanics Research Association, Cranfield (England).

A BIBLIOGRAPHY ON HOT WIRE ANEMOMETRY

T. E. Brock and C. J. Moon Oct. 1965 43 p refs

(BIB-18) CFSTI: HC \$2.00/MF \$0.50

A chronological presentation is given to a bibliography on hot wire anemometry. Abstracts are included for many of the 175 references listed, and both subject and author indexes are appended. M.W.R.

N66-21418# Naval Research Lab., Washington, D. C.

DIRECT ENERGY CONVERSION Literature Abstracts

Dec. 1965 156 p refs

(AD-628049) CFSTI: HC \$5.00/MF \$1.00

This is the tenth in a series of bibliographies covering unclassified literature related to the direct conversion of energy. Subject coverage includes energy conversion, thermoelectricity, thermionics, photovoltaic, magnetohydrodynamics, electrohydrodynamics, electrochemical, nuclear and energy storage. TAB

1965

IAA ENTRIES

A65-17578**HEAT TRANSFER BIBLIOGRAPHY.**

E. R. G. Eckert, E. M. Sparrow, W. E. Ibele, and R. J. Goldstein (Minnesota, University, Dept. of Mechanical Engineering, Heat Transfer Laboratory, Minneapolis, Minn.). International Journal of Heat and Mass Transfer, vol. 8, Jan. 1965, p. 173-185.

Heat-transfer bibliography compiled by workers of the Heat Transfer Laboratory, Department of Mechanical Engineering, University of Minnesota. This is a very extensive bibliography and is divided into the following subheadings: applications, books, boundary-layer flow, change of phase, channel flow, conduction, flow with separated regions, heat and mass transfer, liquid metals, low density, magnetohydrodynamics, measurement techniques, natural convection, packed and fluidized beds, radiation, rotating surfaces, thermodynamic and transport properties, and transfer mechanisms.

A. B. K.

A65-17773**SOLAR SYSTEM SCIENCE - 1963 LITERATURE SURVEY CUMULATIVE AUTHOR-INSTITUTION INDEX.**

Edna O'Connell (RAND Corp., Santa Monica, Calif.). Icarus, vol. 3, Dec. 1964, p. 503-525.

USAF-supported research.

Compilation of the names of authors who have had papers published in the July and Sept. 1964, issues of Icarus, and the institutions with which the authors are associated. The index contains more than 550 entries.

D. H.

A65-18406**HEAT TRANSFER BIBLIOGRAPHY - RUSSIAN WORKS.**

A. V. Luikov (Academy of Sciences, Heat and Mass Transfer Institute, Minsk, Belorussian SSR).

International Journal of Heat and Mass Transfer, vol. 8, Feb. 1965, p. 337-357.

Listing of Russian works on heat transfer in the following departments: (1) books, (2) general, (3) experimental methods, (4) analytical calculation methods, (5) thermodynamics, (6) transfer processes involving phase conversions, (7) transfer processes involving chemical conversions, (8) transfer processes involving very high velocities, (9) drying processes, (10) thermal properties of various materials, heat transfer agents and their determination methods, (11) high temperature physics and magnetohydrodynamics, and (12) transfer processes in technological apparatuses.

M. M.

A65-18407**HEAT TRANSFER BIBLIOGRAPHY.**

E. R. G. Eckert, E. M. Sparrow, W. E. Ibele, and R. J. Goldstein (Minnesota, University, Dept. of Mechanical Engineering, Heat Transfer Laboratory, Minneapolis, Minn.).

International Journal of Heat and Mass Transfer, vol. 8, Feb. 1965, p. 359-371.

Listing of heat transfer books covering the following areas: (1) applications, (2) books, (3) boundary-layer flow, (4) change of phase, (5) channel flow, (6) conduction, (7) flow with separated regions, (8) heat and mass transfer, (9) liquid metals, (10) low density, (11) magnetohydrodynamics, (12) measurement techniques, (13) natural convection, (14) packed and fluidized beds, (15) radiation, (16) rotating surfaces, (17) thermodynamic and transport properties, and (18) transfer mechanisms.

M. M.

A65-20825**THE REFLECTION AND TRANSMISSION OF INFRARED MATERIALS. IV - BIBLIOGRAPHY.**

Donald E. McCarthy (East Los Angeles College, Los Angeles, Calif.).

Applied Optics, vol. 4, Apr. 1965, p. 507-511.

List of papers dealing with the reflection and transmission of CaCO_3 , BaF_2 , NaF , KCl , TiO_2 , Ruby, TiCl , KRS6 , TlBr , ZnSe , MgO , CuCl , and CdSe . An index of refraction papers is also included. The papers are listed according to material, and are arranged alphabetically by the first author in each section.

(Author) F. R. L.

A65-23397 #**A BIBLIOGRAPHY OF OPTIMUM CONTROL THEORY - YEAR 1962**

R. Conti (Firenze, Università, Istituto Matematico, Florence, Italy).

International Journal of Control, First Series, vol. 1, Apr. 1965, p. 327-333.

Addition of 98 items (appearing in 1962) to an extensive bibliography by Fuller with addenda which include the literature on optimum control theory up to 1961.

M. M.

A65-25561**HEAT AND MASS TRANSFER BIBLIOGRAPHY - POLISH WORKS.**

T. Hobler (Polish Academy of Sciences, Research Center of Chemical Engineering and Chemical Apparatus Construction, Gliwice, Poland).

International Journal of Heat and Mass Transfer, vol. 8, May 1965, p. 841-844.

Bibliography of 79 papers and 4 books relative to the fields of heat and mass transfer. The literature covers both theoretical and practical aspects of the phenomena being investigated. All texts are in the Polish language.

D. P. F.

A65-25562**HEAT TRANSFER BIBLIOGRAPHY.**

E. R. G. Eckert, E. M. Sparrow, W. E. Ibele, and R. J. Goldstein (Minnesota, University, Dept. of Mechanical Engineering, Heat Transfer Laboratory, Minneapolis, Minn.).

International Journal of Heat and Mass Transfer, vol. 8, May 1965, p. 845-855.

Bibliography on heat transfer consisting of 45 "applications," 6 books, 45 papers on boundary-layer flow, 41 papers on change of phase, 32 concerning channel flow, 16 on conduction, 5 on flow with separated regions, 11 on heat and mass transfer, 3 on liquid metals, 10 concerning low density, 10 on magnetohydrodynamics, 27 on measurement techniques, 11 on natural convection, 4 referring to packed and fluidized beds, 31 on radiation, 12 on rotating surfaces, 27 on thermodynamic and transport properties, and 6 on transfer mechanisms.

D. P. F.

A65-26383**HEAT TRANSFER BIBLIOGRAPHY - JAPANESE WORKS.**

Takashi Satō (Kyoto University, Dept. of Mechanical Engineering, Kyoto, Japan).

International Journal of Heat and Mass Transfer, vol. 8, June 1965, p. 953, 954.

Heat-transfer bibliography of Japanese works. The subjects covered include channel flow, forced convection, natural convection, conduction, change of phase, two-phase flow, transpiration and mass transfer, and measurement techniques.

A. B. K.

A65-26384**HEAT TRANSFER BIBLIOGRAPHY - RUSSIAN WORKS.**

A. V. Luikov (Belorussian Academy of Sciences, Heat and Mass Transfer Institute, Minsk, Belorussian SSR).

International Journal of Heat and Mass Transfer, vol. 8, June 1965, p. 955-969.

Heat-transfer bibliography of Russian works. The subjects covered include thermodynamics, heat conduction, convective heat

transfer, radiant heat transfer, transfer processes involving a change of phase, transfer processes involving chemical changes and combustion, mass transfer, fluid dynamics, drying processes, thermal properties and methods of determining them, heat and mass transfer involving high temperatures or occurring in plasma, and transfer processes in technological installations. A.B.K.

A65-29113

SOLAR SYSTEM SCIENCE - 1964 LITERATURE SURVEY. I. Edna O'Connell (RAND Corp., Santa Monica, Calif.). *Icarus*, vol. 4, July 1965, p. 319-333.

Bibliography containing 275 entries on various astronomical subjects, published in the year 1964, and referring to 11 US, British, and Soviet technical publications. The entries are distributed among 11 main subject headings: atmospheric physics, cosmogony, interplanetary physics, planetary biology, meteorites, planetary geodesy, planetary geology, planetary physics, solar physics, solar-system dynamics, and solar-terrestrial relations. D.P.F.

A65-32418

HEAT TRANSFER - A REVIEW OF CURRENT LITERATURE. E. R. G. Eckert, E. M. Sparrow, W. E. Ibele, and R. J. Goldstein (Minnesota, University, Dept. of Mechanical Engineering, Heat Transfer Laboratory, Minneapolis, Minn.). *International Journal of Heat and Mass Transfer*, vol. 8, Aug. 1965, p. 1053-1083.

Review of recently published literature dealing with research in the field of heat transfer. The literature on channel flow is said to emphasize noncircular geometries and the effect of variable fluid properties. The analysis of turbulent boundary layers is refined and generalized in a number of papers. The study of heat transfer in boundary layers with chemical reactions is also seen to tend toward refinement of available methods. In experiments on boundary-layer heat transfer, special attention is devoted to the effect of surface roughnesses and fin-body interactions. The gases used in such studies are said to simulate the atmospheres of Venus and Mars. The effect of thermal diffusion on heat and mass transfer is given considerable attention. Numerous experimental studies of heat transfer with phase change are described, in which the details of nucleate and film boiling processes are revealed by visual observation or photographs. The effect of promoters to establish or maintain nucleate boiling is considered. A number of investigations of regenerative heat exchangers are said to have been prompted by the development of the gas turbine. A list of 655 references is appended. A.B.K.

A65-32497

ELEMENTARY COMBUSTION REACTIONS - NEUTRAL SPECIES. P. G. Ashmore (Manchester College of Science and Technology, Manchester, England).

IN: SYMPOSIUM (INTERNATIONAL) ON COMBUSTION, 10TH, UNIVERSITY OF CAMBRIDGE, CAMBRIDGE, ENGLAND, AUGUST 17-21, 1964. [A65-32457 21-33]

Symposium supported by the British Section of the Combustion Institute; National Academy of Sciences-National Research Council; National Science Foundation, Grant No. GN-260; National Aeronautics and Space Administration, Grant No. NSG-506; U.S. Army, Contract No. DA-31-124-ARO-D-197.

Pittsburgh, Pa., Combustion Institute, 1965, p. 377-384; Comments, S. C. Kurzius (AeroChem Research Laboratories, Inc., Princeton, N.J.), p. 385, 386. 51 refs.

Literature survey of available papers on elementary combustion reactions with emphasis on areas of disagreement or uncertainty. The general background of work on combustion is briefly sketched. It is noted that little new information has been brought forth concerning the rates of reactions important in the slow oxidation of long-chain hydrocarbons, or concerning reactions of alkoxy or alkyl-peroxy radicals with hydrocarbons. There would seem to be need for further systematic study in this field along the lines recently suggested by Minkhoff and Tipper. M.M.

A65-32657

A REVIEW OF RECENT WORK ON FILAMENTARY STRUCTURES. L. M. Habip (Florida, University, Dept. of Engineering Science and Mechanics, Gainesville, Fla.). *International Journal of Mechanical Sciences*, vol. 7, Apr. 1965, p. 297-299. 41 refs.

Review of contributions to the theory of filament-wound structures. Some recent work on the mechanical properties of reinforced materials is surveyed. A list of 41 references is appended. (Author) M.F.

A65-32749

LASER BIBLIOGRAPHY.

K. Tomiyasu (General Electric Co., Schenectady, N.Y.). *IEEE Journal of Quantum Electronics*, vol. QE-1, June 1965, p. 133-156.

Bibliography of articles compiled during the period from June to Dec. 1964. The subject categories listed include: laser analyses, ruby laser, neodymium laser, He-Ne gas laser, organic laser, GaAs injection luminescent devices, laser amplifiers, giant pulse techniques (Q-switching), laser-beam control and steering, coherence interference and quantum noise, pumping and light sources, transmission, propagation scattering, reflection and filtering, nonlinear, thermal, and other interaction effects with matter, and laser instrumentation. M.F.

A65-32842

PLASMA PHYSICS - BIBLIOGRAPHY, 1955-1961 [FIZIKA PLAZMY - BIBLIOGRAFIKESKII UKAZATEL', 1955-1961]. Edited by I. S. Shpigel' and L. M. Kovrizhnykh. Moscow, Izdatel'stvo "Nauka," 1964. 356 p. In Russian.

This literature index of theoretical plasma physics has been compiled specifically for scientists, rather than engineers. It covers roughly 7000 publications from the period from Jan. 1955 to Dec. 1961. All material is ordered in 11 major sections (with numerous subsections). The first two sections cover symposia and books, respectively. Subsequent sections deal with plasma kinetics and hydrodynamics, controlled thermonuclear reactions, elementary processes in plasmas and their kinetics, plasma spectra and emission, gas discharges, shock waves, plasma and ion engines, exploding wire phenomena, and methods used in plasma diagnostics. An author index is included. V.P.

A65-33220

BIBLIOGRAPHY.

D. Dowson (Leeds, University, Mechanical Engineering Dept., Leeds, England) and J. F. Archard (Leicester, University, Dept. of Engineering, Leicester, England).

IN: ELASTOHYDRODYNAMIC LUBRICATION; SYMPOSIUM, LEEDS, ENGLAND, SEPTEMBER 21-23, 1965. NOTATION, REVIEW PAPERS, BIBLIOGRAPHY.

London, Institution of Mechanical Engineers, 1965, p. 31-35.

Bibliography of the symposium on elastohydrodynamic lubrication held in Leeds, England, from Sept. 21 to Sept. 23, 1965. F.R.L.

A65-34873

CHRONOLOGY AND BIBLIOGRAPHY OF ESAKI DIODES.

Teruhiko Bessho and Hajime Niiyama (Nippon Telegraph and Telephone Public Corp., Electrical Communication Laboratory, Tokyo, Japan).

Electronics and Communications in Japan, vol. 47, Apr. 1964, p. 153-184. Translation.

Chronological listing, within categories, of selections (mostly US and Japanese) from the published literature on the Esaki diode for the period Jan. 1958 to Nov. 1963. The categories include (1) general principles and characteristics; (2) materials, fabrication techniques, and design; (3) measurement techniques; (4) general circuits; (5) oscillators and pulse generators; (6) amplifiers; (7) frequency converters; (8) logic circuits; and (9) memory circuits. Of the 929 entries, about half are devoted to amplifiers and logic

circuits. Recent improvements are noted that should counter the adverse reaction that set in in 1960 when early expectations for the diode were not fully realized.

F. R. L.

1966

IAA ENTRIES

A65-35373

SOLAR SYSTEM SCIENCE - 1964 LITERATURE SURVEY. II.

Edna O'Connell (RAND Corp., Santa Monica, Calif.).

Icarus, vol. 4, Sept. 1965, p. 444-459.

Bibliography containing 290 entries on various astronomical subjects. The articles, the great majority of which are in English, were published in 1964 in 18 technical publications. The entries are distributed among 11 main subject headings: atmospheric physics, cosmogony, interplanetary physics, planetary biology, meteorites, planetary geology, planetary geology, planetary physics, solar physics, solar-system dynamics, and solar-terrestrial relations.

R. A. F.

A65-35441

HEAT TRANSFER BIBLIOGRAPHY.

E. R. G. Eckert, E. M. Sparrow, W. E. Ibele, and R. J. Goldstein (Minnesota, University, Dept. of Mechanical Engineering, Heat Transfer Laboratory, Minneapolis, Minn.).

International Journal of Heat and Mass Transfer, vol. 8, Sept. 1965, p. 1235-1251.

Bibliography of recent literature on various phases of heat transfer. Among the subjects covered are boundary-layer flow, change of phase, channel flow, conduction, flow with separated regions, heat and mass transfer, liquid metals, magnetohydrodynamics, measurement techniques, natural convection, packed and fluidized beds, radiation, thermodynamic and transport properties and transfer mechanisms.

A. B.

A65-81644

PERCEPTION BIBLIOGRAPHY: XVIII. PSYCHOLOGICAL INDEX NO. 14, 1907.

R. B. Ammons and C. H. Ammons (Mont. State U., Missoula).

Perceptual and Motor Skills, vol. 20, Jun. 1965, Part 1, p. 989-992. 97 refs.

This is an alphabetical list of 97 references to work in perception selected from *Psychological Index*, no. 14, 1907.

A65-81660

PERCEPTION BIBLIOGRAPHY: XIX. PSYCHOLOGICAL INDEX NO. 15, 1908.

C. H. Ammons and R. B. Ammons (Mont. State U., Missoula).

Perceptual and Motor Skills, vol. 20, Jun. 1965, Part 2, p. 1273-1276. 77 refs.

This is an alphabetical listing of 77 references related to perception from the *Psychological Index*, no. 15, 1908.

A65-82342

PERCEPTION BIBLIOGRAPHY: XX. PSYCHOLOGICAL INDEX, NO. 16, 1909.

R. B. Ammons and C. H. Ammons (Mont. U., Missoula).

Perceptual and Motor Skills, vol. 21, Aug. 1965, p. 287-290. 116 refs.

This is a listing of 116 items dealing with various aspects of perception, selected from the *Psychological Index*, no. 16, 1909.

A65-82344

MOTOR SKILLS BIBLIOGRAPHY: XLIV. PSYCHOLOGICAL ABSTRACTS, 1964, VOLUME 38, FIRST HALF.

R. B. Ammons and C. H. Ammons (Mont. U., Missoula).

Perceptual and Motor Skills, vol. 21, Aug. 1965, p. 315-318. 99 refs.

This is an alphabetical listing of 99 articles on motor skills selected from *Psychological Abstracts*, 1964, vol. 38, First Half.

A66-10178

THERMODYNAMICS.

F. Bošnjaković and K. H. Lillich.

IN: PROGRESS IN TECHNOLOGY 1962/63. VOLUME 6 [FORTSCHRITTE DER VERFAHRENSTECHNIK 1962/63. VOLUME 6].

Edited by H. Miessner and E. O. Schmidt.

Weinheim, West Germany, Verlag Chemie, GmbH, 1964, p. 139-168. 495 refs. In German.

Survey of the literature dealing directly with the fundamental concepts of thermodynamics, with particular reference to the bibliographies published periodically in the *International Journal of Heat and Mass Transfer*, the ASME symposia, and Ibele's *Modern Developments in Heat Transfer*. The literature is ordered as follows: (1) general principles of thermodynamics, including textbooks, and books dealing with the laws of thermodynamics, the exergy concept, radiation, irreversible thermodynamics, and measuring and testing techniques; (2) properties of one-component systems, including phase transition, behavior in the critical range, monatomic gases, air and certain diatomic gases, water and water vapor, organic substances, and inorganic substances; (3) properties of multicomponent systems, including the determination of equilibrium properties, inorganic mixtures, organic mixtures, and inorganic-organic mixtures; (4) transport properties of materials, including theoretical and experimental works on heat conductivity and viscosity; and (5) technological properties, including problems in conventional energy production, unconventional energy conversion, cryogenic and low-temperature technology, and high-temperature technology.

V. P.

A66-11372

LASER BIBLIOGRAPHY. II.

K. Tomiyasu (General Electric Co., Schenectady, N. Y.).

IEEE Journal of Quantum Electronics, vol. QE-1, Aug. 1965, p. 199-219.

Bibliography of 561 references on all aspects of laser devices and related systems compiled during the period from January through June, 1965. The references are divided into 25 subject categories and listed chronologically. Brief annotations are added to many references.

M. F.

A66-11612

BIBLIOGRAPHY.

IN: CURRENT ASPECTS OF EXOBIOLGY.

Edited by Gregg Mamikunian and M. H. Briggs.

New York, Pergamon Press, Inc., 1965, p. 359-420.

Bibliography of current aspects of exobiology, divided into sections dealing with (1) the solar system, (2) life detection systems, (3) the origin of life, and (4) life in the universe. Subsections of (1) list works discussing the subject in general terms, and others discussing terrestrial organic matter, the moon, Mars, Venus, Jupiter, other planets, and meteorites. The second section gives titles which review the subject in general, and present accounts of specific devices. In section 3 the listed titles include reviews, the synthesis of organic compounds from simple precursors, the origins of cells, the natural interplanetary transfer of organisms, the artificial transfer of organisms, and the sterilization of space vehicles. Reviews, the incidence of planets, the origin of planets, and communication across interstellar distances are the subdivisions of the fourth section.

F. R. L.

A66-12457 #

INTERNATIONAL SATELLITE BIBLIOGRAPHY.

Biuletyn Polskich Obserwacji Sztucznych Satelitów, Dec. 1964. 99 p. In Polish, English, and Russian.

Bibliographic selection that constitutes a part of the International Satellite Bibliography. The subjects covered are: orbital theory of earth satellites (influence of the earth's gravitational field and of the atmosphere, lunar and solar perturbations, and radiation effects); theory of lunar-satellite motion; theory of motion of artificial satellites of other planets; theory of motion of artificial asteroids; rotational motion of satellites; methods for calculating orbits (particularly from radio observations); determination of orbits; computation of ephemerides; orbital data; results of observations; study of the earth's gravitational field; application of artificial satellites in geometrical geodesy; application of artificial satellites in navigation; atmospheric studies; study of solar pressure; and problems in the theory of relativity. To avoid transliteration, the Russian references are listed separately and in their original spelling.

V. P.

A66-15910 #

INDEX OF LITERATURE ON SPACE MEDICINE AND BIOASTRONAUTICS PUBLISHED IN THE USSR IN 1964 AND 1965 [UKAZATEL' LITERATURY PO AVIAKOSMICHESKOI MEDITSINE I BIOASTRONAVTIKE, IZDANNOI V SSSR (1964-1965)].

L. I. Boreva and E. M. Zavodovskaia.

International Astronautical Federation, International Astronautical Congress, 16th, Athens, Greece, Sept. 13-18, 1965, Paper. 68 p. In Russian.

Bibliography of Soviet papers on various aspects of space medicine and bioastronautics published in 1964 and 1965. The material covers biology, neurophysiology, sensory physiology, psychology, psychiatry, pharmacology, toxicology, and the general medical problems of space flight as well as man-machine integration and life support systems.

V. Z.

A66-16308 #

A SELECT BIBLIOGRAPHY ON SEMICONDUCTOR RELIABILITY.

B. J. S. Williams (Hatfield College of Technology, Hatfield, Herts., England).

Symposium on Engineering for Reliability in the Design of Semiconductor Equipment, Hatfield College of Technology, Hatfield, Herts., England, May 13, 14, 1965, Paper. 56 p.

Bibliography that is classified under applications (computers, converters, guided weapons, radio, spacecraft, switching, telephony, etc.), costs, devices, environments, microminiaturization, networks and systems, production processes, standards, and techniques. The entries are also classified under subject and author indices.

D. P. F.

A66-20100 #

BOILING OF LIQUIDS [KIPENIE ZHIDKOSTEI].

E. I. Nesis.

Uspekhi Fizicheskikh Nauk, vol. 87, Dec. 1965, p. 615-653. 249 refs. In Russian.

Review of recent Soviet and foreign papers on the physics of boiling. Sections of the review deal with heat transfer and heat release in boiling, techniques of experimental boiling studies, various aspects of bubbling processes, the kinetics and sonic aspects of boiling; and boiling of solutions and mixtures. Theories of various authors are analyzed and assessed.

V. Z.

A66-20180

HEAT TRANSFER BIBLIOGRAPHY.

E. R. G. Eckert, E. M. Sparrow, W. E. Ibele, and R. J. Goldstein (Minnesota, University, Dept. of Mechanical Engineering, Heat Transfer Laboratory, Minneapolis, Minn.).

International Journal of Heat and Mass Transfer, vol. 8, Dec. 1965, p. 1537-1553.

Bibliography on the subject of heat transfer. The subject headings include: applications; boundary layer; change of phase; channel flow; conduction; flow with separated regions; heat and mass transfer; liquid metals; low density; magnetohydrodynamics; measurement techniques; natural convection; packed and fluidized beds; radiation; rotating surfaces; thermodynamic and transport properties; and transfer mechanisms.

M. F.

A66-21614

A BIBLIOGRAPHY OF ARTICLES ON RADAR REFLECTIVITY AND RELATED SUBJECTS - 1957-1964.

H. A. Corriher, Jr. and Berry O. Pyron (Georgia Institute of Technology, Engineering Experimental Station, Atlanta, Ga.).

IEEE, Proceedings, vol. 53, Aug. 1965, p. 1025-1064.

Contract No. DA-36-039-AMC-03759(E).

This bibliography consists of 1420 references from over 275 journals or other sources in the open literature, and represents contributions from over 1225 authors. Material has been selected from that now being compiled at the Georgia Institute of Technology for a comprehensive collection of abstracts and references entitled "A Bibliography of Radar Reflection Characteristics." Coverage is extensive but not exhaustive, is international in scope (with heavy representation from the Soviet literature), and is restricted to the time period 1957 to 1964. Subject coverage includes: scattering and diffraction theory, simple geometrical shapes, geophysical targets (auroras, ionosphere, meteor trails, sea surface, terrain, and angels and related atmospheric phenomena); planets and space targets; and plasmas. Other topics include: absorbers, aircraft, missiles, chaff and dipoles, acoustic scattering, laser radar, reflectors, and measurement techniques and equipment. (Author)

A66-80140

MOTOR SKILLS BIBLIOGRAPHY: XLV. PSYCHOLOGICAL ABSTRACTS, 1964, VOLUME 38, SECOND HALF.

C. H. Ammons and R. B. Ammons (Mont. U., Missoula).

Perceptual and Motor Skills, vol. 21, Oct. 1965, p. 515-518. 102 refs.

This is a selected list of 102 items concerned with motor skills from Psychological Abstracts, vol. 38, 2nd half, 1964.

A66-80183

PERCEPTION BIBLIOGRAPHY: XXII. PSYCHOLOGICAL INDEX, NO. 18, 1911.

R. B. Ammons and C. H. Ammons (Mont. U., Missoula).

Perceptual and Motor Skills, vol. 21, Oct. 1965, p. 667-670. 104 refs.

This is an alphabetical listing of 104 references on perception, selected from Psychological Index, XXII, no. 18, 1911.

A66-80512

PERCEPTION BIBLIOGRAPHY: XXI. PSYCHOLOGICAL INDEX, NO. 17, 1910.

C. H. Ammons and R. B. Ammons (Mont. U., Missoula).

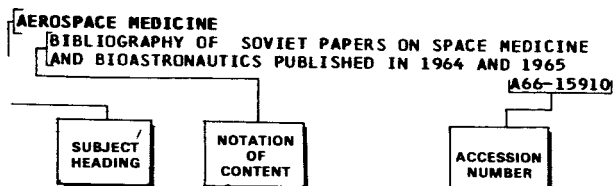
Perceptual and Motor Skills, vol. 21, Oct. 1965, p. 587-590. 102 refs.

This is an alphabetical listing of 102 references to work in perception, selected from Psychological Index, XXI, no. 17, 1910.

Subject Index

BIBLIOGRAPHIES ON AEROSPACE SCIENCE / *a continuing bibliography* JUNE 1966 with indexes

Listing of Subject Headings of Reports



A Notation of Content (NOC), rather than the title of the document, is used to provide a more exact description of the subject matter. In order to provide the user with more than one approach in the search for specific information, a subject may be listed under several subject headings. The accession number is included to assist the user in locating the abstract in the abstract section.

A

ABSORPTION

BIBLIOGRAPHY OF INFRARED REFLECTION, REFRACTION, AND ABSORPTION PROPERTIES OF LIQUID WATER
NRL-BIBL-25 N66-13765

ABSORPTION SPECTRUM

MOSSBAUER EFFECT DATA INDEX - EXPERIMENTAL DATA ON NUCLEAR TRANSITION, SOURCE MATERIAL, AND ABSORBER MATERIAL - BIBLIOGRAPHY
SCTR-65-2 N65-36424

ACOUSTICS

SPEECH PRODUCTION, TRANSMISSION, AND ANALYSIS - INSTRUMENTATION, NASAL CAVITY STRUCTURES, ACOUSTICS, SPEECH SPECTRUM, DEAFNESS AIDS, AND BIBLIOGRAPHY ON SPEECH RECODING FOR DEAFNESS
STL-QPSR-4/1964 N65-23850

SEISMOLOGICAL, ACOUSTIC, AND RADIO ANTENNA ARRAY TECHNOLOGY - BIBLIOGRAPHY AND ABSTRACTS
TR-65-114 N66-18549

ACTINIDE

BIBLIOGRAPHY AND ABSTRACTS ON HYDRATED ACTINIDE OXIDE SOLS AND URANIUM HYDROLYSIS REACTIONS
ORNL-TM-1052 N66-18285

AERODYNAMIC CHARACTERISTICS

X-15 AIRCRAFT DEVELOPMENT CONCEPT, FLIGHT RESEARCH, AERODYNAMIC CHARACTERISTICS OF SUPERSONIC-HYPERSONIC FLIGHT, HYPERSONIC STRUCTURE, FLYING LABORATORY, AND BIBLIOGRAPHY
NASA-SP-60 N65-20162

MIXING OF CONCENTRIC HIGH VELOCITY AIR STREAMS - JET MIXING FLOW AERODYNAMIC CHARACTERISTICS - ABSTRACTS
AID-U-64-24 N66-14181

AERODYNAMICS

BIBLIOGRAPHY ON FLIGHT NAVIGATION SYSTEMS, FLIGHT SAFETY, AIRCRAFT REFUELING, AND AERODYNAMICS
N65-21184

BIBLIOGRAPHY ON CURRENT AERODYNAMIC RESEARCH
ARC-CP-650 N65-26432

AEROSONICS BIBLIOGRAPHY - FLUID DYNAMICS OF SUPERSONIC JET FLOWS
REPT.-65-3 N65-28720

ABSTRACTS ON PARACHUTE TECHNOLOGY - AERODYNAMICS, MATERIALS, TRAINING, AND RECOVERY
AD-427014 N65-29865

TITLES AND ABSTRACTS OF ALL UNCLASSIFIED U.S. NAVAL CRDNANCE LABORATORY REPORTS PUBLISHED BY AEROBALLISTICS AREA
NOLTR-64-222 N65-33395

COMPILATION OF ABSTRACTS ON MODEL DESCRIPTIONS, PROPULSION, INDUSTRIAL MATERIALS, PANEL SYSTEMS AND INSTRUMENTS, NAVIGATION AND AIR TRAFFIC CONTROL, SAFETY, AND AERODYNAMICS
N66-15737

AERONAUTICS

BIBLIOGRAPHY OF AERONAUTICAL STUDIES FROM 1912 TO 1945
N65-23490

AEROSOL

ANNOTATED BIBLIOGRAPHY ON MICROMETEOROLOGY - STAGNANT WEATHER CONDITIONS, BOUNDARY LAYER TURBULENCE, AEROSOLS, AND AIR POLLUTION
ATD-P-65-18 N65-22778

AEROSOLS, BIOLOGICAL PATHOGENS, CHEMICAL SUBSTANCES - BIBLIOGRAPHY OF SOVIET OPEN LITERATURE PRIOR TO 31 DECEMBER 1962
ATD-B-65-43 N65-32709

AEROSPACE

ABSTRACTS ON AEROSPACE REPORTS - TUMBLING TEST ON GYROSCOPE - ORBIT DETERMINATION PROGRAM TRACE - RADAR RESOLUTION - DIGITAL ELECTRONICS - DATA ANALYSIS - THERMAL DIFFUSIVITY - CRYSTAL GROWTH
CSR-469/9990/MS-7 N65-33238

AEROSPACE MEDICINE

AEROSPACE MEDICINE AND BIOLOGY - CONTINUING BIBLIOGRAPHY
NASA-SP-7011/06/ N65-17879

ANNOTATED BIBLIOGRAPHY ON AEROSPACE MEDICINE AND BIOLOGY
NASA-SP-7011/08/ N65-19038

BIBLIOGRAPHY ON AEROSPACE MEDICINE AND BIOLOGY
NASA-SP-7011/07/ N65-19271

ANNOTATED BIBLIOGRAPHY ON AEROSPACE MEDICINE
AM-64-20 N65-20372

ANNOTATED BIBLIOGRAPHY ON EFFECTS OF RADIATION ABSORPTION ON ANIMALS, FLIGHT MEDICINE, PSYCHOLOGY, PSYCHIATRY, PHYSIOLOGY, AND HUMAN PATHOLOGY
N65-21202

AEROSPACE MEDICINE AND BIOLOGY - ANNOTATED BIBLIOGRAPHY FOR 1962 AND 1963
NASA-CR-62127 N65-21424

BIBLIOGRAPHY ON AVIATION MEDICINE FROM BEGINNING TO YEAR 1950
N65-21735

AEROSPACE MEDICINE AND BIOLOGY - BIBLIOGRAPHY
NASA-SP-7011/09/ N65-22614

AEROSPACE MEDICINE AND BIOLOGY - BIBLIOGRAPHY
NASA-SP-7011/10/ N65-22615

BIBLIOGRAPHIC INDEX TO LITERATURE ON AEROSPACE MEDICINE AND BIOASTRONAUTICS PUBLISHED IN U.S.S.R., 1962-1964
NASA-TT-F-270 N65-22968

- ANNOTATED BIBLIOGRAPHY OF AVIATION MEDICINE
TRANSLATIONS
AM-65-17 N65-26955
- COMPILATION OF ABSTRACTS ON SPACE MEDICINE AND
BIOLOGY, SPACE PHYSIOLOGY, AND SPACE VEHICLE
ECOLOGY - LIFE SUPPORT SCIENCES
ATD-P-64-66 N65-27748
- ANNOTATED BIBLIOGRAPHY ON BIOLOGICAL,
PHYSIOLOGICAL, PSYCHOLOGICAL, AND ENVIRONMENTAL
EFFECTS OF AIR AND INTERPLANETARY FLIGHT UPON MAN
NASA-SP-7011/11/ N65-29648
- BIBLIOGRAPHY ON AEROSPACE MEDICINE AND BIOLOGY
NASA-SP-7011/13/ N65-30951
- ANNOTATED BIBLIOGRAPHY ON AEROSPACE MEDICINE AND
BIOLOGY
NASA-SP-7011/14/ N65-33830
- BIBLIOGRAPHY ON BALLISTOCARDIOGRAPHY
NASA-SP-7021 N65-35520
- AEROSPACE MEDICINE AND BIOLOGY - CONTINUING
BIBLIOGRAPHY WITH INDEXES
NASA-SP-7011/15/ N65-36894
- BIBLIOGRAPHY OF SOVIET PAPERS ON SPACE MEDICINE
AND BIOASTRONAUTICS PUBLISHED IN 1964 AND 1965
A66-15910
- ANNOTATED BIBLIOGRAPHY OF AEROSPACE MEDICINE AND
BIOLOGY
NASA-SP-7011/16/ N66-10316
- BIBLIOGRAPHY OF AEROSPACE MEDICINE AND BIOLOGY
NASA-SP-7011/17/ N66-12345
- ANNOTATED BIBLIOGRAPHY OF AEROSPACE MEDICINE AND
BIOLOGY WITH SUBJECT, AUTHOR, AND CORPORATE
SOURCE INDEXES - PHYSIOLOGICAL, PSYCHOLOGICAL,
AND SPACE ENVIRONMENT EFFECTS ON MAN
NASA-SP-7011/18/ N66-14160
- AEROSPACE MEDICINE AND BIOLOGY - ANNOTATED
BIBLIOGRAPHY
NASA-SP-7011/19/ N66-15827
- SOVIET ABSTRACTS ON PROBLEMS OF SPACE BIOLOGY
N66-16933
- AEROSPACE MEDICINE AND BIOLOGY - CONTINUING
BIBLIOGRAPHY WITH ABSTRACTS
NASA-SP-7011/21/ N66-17886
- AEROSPACE TECHNOLOGY**
BIBLIOGRAPHY ON LONG RANGE PLANNING IN AEROSPACE
TECHNOLOGY AND DEFENSE INDUSTRY
LMSC-5-10-65-3 N65-19831
- ANNOTATED BIBLIOGRAPHY ON AEROSPACE SCIENCES
NASA-SP-7006/01/ N65-21737
- ANNOTATED BIBLIOGRAPHY OF SOVIET AEROSPACE
INSTRUMENTATION RESEARCH
ATD-P-65-49 N65-29703
- BIBLIOGRAPHICAL INDEX ON AEROSPACE TECHNOLOGY
NASA-CR-64613 N65-33147
- AGENA ROCKET**
GEMINI AGENA TARGET VEHICLE BIBLIOGRAPHY
LMSC-A605144 N65-33349
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LMSC-A605144 N66-13440
- AIR**
ABSTRACTS ON MIXED FLOW CONCENTRIC HIGH VELOCITY
AIR STREAMS
ATD-P-65-41 N65-30530
- AIR BREATHING ENGINE**
ABSTRACTS OF PAPERS ON LIQUID PROPELLANT ROCKETS
AND AIR BREATHING COMBUSTION
AFOSR-64-0258 N66-16477
- AIR CURRENT**
MIXING OF CONCENTRIC HIGH SPEED AIR CURRENTS -
ANNOTATED BIBLIOGRAPHY
ATD-P-65-15 N65-20927
- AIR POLLUTION**
ANNOTATED BIBLIOGRAPHY ON MICROMETEOROLOGY -
STAGNANT WEATHER CONDITIONS, BOUNDARY LAYER
TURBULENCE, AEROSOLS, AND AIR POLLUTION
ATD-P-65-18 N65-22778
- BIBLIOGRAPHY ON AIR POLLUTION - ATMOSPHERE,
BIOCHEMISTRY, CHEMISTRY, PHYSICS, CONTROL
DEVICES, INSTRUMENTATION, METEOROLOGY,
PHYSIOLOGY, AND ECONOMICS N65-23773
- ANNOTATED BIBLIOGRAPHY ON SULFUR OXIDES AND OTHER
SULFUR COMPOUNDS WITH RELATION TO AIR POLLUTION
N65-23857
- AIR TRAFFIC CONTROL**
COMPILATION OF ABSTRACTS ON MODEL DESCRIPTIONS,
PROPULSION, INDUSTRIAL MATERIALS, PANEL SYSTEMS
AND INSTRUMENTS, NAVIGATION AND AIR TRAFFIC
CONTROL, SAFETY, AND AERODYNAMICS N66-15737
- ABSTRACTS AND BIBLIOGRAPHY ON AIRCRAFT, GROUND
EFFECT MACHINE, AND HELICOPTER AERODYNAMICS
PROPULSION, CONTROL, AND INSTRUMENTATION, AND
AIR TRAFFIC CONTROL AND NAVIGATION N66-19933
- AIRCRAFT**
ABSTRACTS AND BIBLIOGRAPHY ON AIRCRAFT, GROUND
EFFECT MACHINE, AND HELICOPTER AERODYNAMICS
PROPULSION, CONTROL, AND INSTRUMENTATION, AND
AIR TRAFFIC CONTROL AND NAVIGATION N66-19933
- AIRCRAFT HAZARD**
INFORMATION RETRIEVAL SYSTEM USING BIBLIOGRAPHY
DEALING WITH POSTCRASH AIRCRAFT FIRE, RESCUE,
AND EVALUATION
ADS-16 N66-17396
- AIRPORT**
ABSTRACTS AND BIBLIOGRAPHY ON AIRPORT, ROAD, AND
BUILDING CONSTRUCTION, ON PHOTOGRAMMETRY, ON
CHEMICAL-BIOLOGICAL-RADIOLOGICAL WARFARE, AND ON
APPLICATION OF MOIRE METHOD N66-19926
- ALLOY**
ABSTRACTS ON SPACE RELATED SCIENCES, PHYSICAL LIFE
AND ENGINEERING SCIENCES - RADIOACTIVITY -
DISPERSION HARDENING OF ALLOYS - ULTRASONIC
TREATMENT - PHYSIOLOGY - PSYCHOLOGY
NASA-CR-67721 N66-10886
- ANNOTATED ABSTRACTS OF MATERIALS SCIENCE TECHNICAL
MEMORANDUM - PLASTIC, COMPOSITE, EXPLOSIVE,
LUBRICANT, ENGINEERING, PROPELLANT, ALLOY, AND
HEAT CARRYING MATERIALS
NASA-TM-X-53378 N66-16157
- ANNOTATED BIBLIOGRAPHY ON LIQUID METALS, PHYSICAL
PROPERTIES OF ALLOYS, X-RAY DIFFRACTION STUDIES,
THEROCHEMISTRY, AND THERMODYNAMICS
ATD-B-65-95 N66-19399
- ALUMINUM COMPOUND**
ALUMINUM SALTS OF SUBSTITUTED BENZOIC ACIDS FOR
USE AS HIGH TEMPERATURE GREASE THICKENERS -
BIBLIOGRAPHY WITH ABSTRACTS
AFML-TR-64-324 N65-31634
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AMPHIBIOUS VEHICLES, TRUCKS, AND STUDIES ON
BRAKING, IGNITION, ENGINE, SUSPENSION, AND
ELECTRICAL SYSTEMS N66-15780
- AMPLIFIER**
ABSTRACTS OF REFERENCES ON LOW AND VERY LOW LEVEL
DIRECT CURRENT AMPLIFIERS AND MODULATORS
N66-19164
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QUALITY CONTROL - ABSTRACTS OF PUBLICATIONS
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BIOLOGICAL ASPECTS, AND BIBLIOGRAPHY
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ALLOYS AND COMPOUNDS
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PSYCHOLOGY, PSYCHIATRY, PHYSIOLOGY, AND HUMAN
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ANIMALS
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METEOROLOGY, HYDROLOGY, WEATHER FORECASTING, AND
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ANTICYCLONES, WEATHER NAVIGATION AID FOR SHIPS,
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PROCESSES, PARTICLE INTERACTIONS, INTERACTIONS
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ARTIFICIAL RADIATION BELTS, AURORA, SOLAR ENERGY
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AND NEUTRONS
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ELECTRICAL SYSTEMS N66-15780
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AMPHIBIOUS VEHICLES, TRUCKS, AND STUDIES ON
BRAKING, IGNITION, ENGINE, SUSPENSION, AND
ELECTRICAL SYSTEMS N66-15780
- BUCKLING
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- C
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NASA-TM-X-53378 N66-16157

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ATD-P-65-64 N66-14046

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PROCESSING, COMPUTERS, MICROELECTRONICS, AND
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SUBJECTS - ANNOTATED BIBLIOGRAPHY
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PARTICLES, GALACTIC COSMIC RAYS, GEOMAGNETISM,
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FLUIDS IN SOLID, LIQUID, AND VAPOR PHASES
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PRECIPITATION, AND BIBLIOGRAPHY
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 AFCRL-64-998 N65-27104

GEOMAGNETISM
 BIBLIOGRAPHY ON SOLAR WIND EFFECT, RADIATION AND
 ARTIFICIAL RADIATION BELTS, AURORA, SOLAR ENERGY
 PARTICLES, GALACTIC COSMIC RAYS, GEOMAGNETISM,
 AND NEUTRONS
 NASA-TM-X-55192 N65-21659

GEOPHYSICS
 GEOPHYSICS - BIBLIOGRAPHY OF PUBLICATIONS
 N65-29019

INTERNATIONAL SATELLITE BIBLIOGRAPHY INCLUDING
 ORBITAL THEORY, LUNAR-SATELLITE MOTION, ARTIFICIAL
 ASTEROIDS, GEOMAGNETIC FIELD, GEODESY, NAVIGATION,
 ETC A66-12457

METEORITIC COMPOSITION AND STRUCTURE OF CRATERS -
 ABSTRACTS
 AID-U-64-51 N66-20167

GERMANIUM OXIDE
 ABSTRACTS AND BIBLIOGRAPHY ON CRYSTALLOGRAPHY OF
 BORON OXIDE, SILICA, AND GERMANIUM OXIDE
 PR-2 N66-18491

GLASS
 SHORT-WAVE AND PARTICLE RADIATION EFFECT ON
 GLASSES - ANNOTATED BIBLIOGRAPHY
 NASA-CR-60407 N65-15819

GRAPH
 SURVEY IN FORM OF TABLES AND GRAPHS OF SURFACE
 BRIGHTNESS AND DEGREE OF POLARIZATION OF
 ZODIACAL LIGHT AS FUNCTION OF ELONGATION IN
 PLANE OF ELLIPTIC - RELATED BIBLIOGRAPHY
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 ABSTRACTS ON QUANTUM THEORY, RELATIVISTIC
 MECHANICS, AND PARTICLE MOTION
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 USE AS HIGH TEMPERATURE GREASE THICKENERS -
 BIBLIOGRAPHY WITH ABSTRACTS
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GROUND
 ANNOTATED BIBLIOGRAPHY ON LAND AND SEA BREEZE -
 WIND CIRCULATION
 N65-31374

GROUND EFFECT MACHINE

ABSTRACTS AND BIBLIOGRAPHY ON AIRCRAFT, GROUND EFFECT MACHINE, AND HELICOPTER AERODYNAMICS
PROPULSION, CONTROL, AND INSTRUMENTATION, AND AIR TRAFFIC CONTROL AND NAVIGATION

N66-19933

H

HEARING LOSS

SPEECH PRODUCTION, TRANSMISSION, AND ANALYSIS - INSTRUMENTATION, NASAL CAVITY STRUCTURES, ACOUSTICS, SPEECH SPECTRUM, DEAFNESS AIDS, AND BIBLIOGRAPHY ON SPEECH RECODING FOR DEAFNESS
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N66-12928

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ANNOTATED BIBLIOGRAPHY OF THERMAL TESTING LITERATURE
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A65-17578

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A65-18407

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A65-25561

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A65-26383

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A65-26384

HEAT TRANSFER RESEARCH, REVIEW OF CURRENT PUBLISHED LITERATURE

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N65-24564

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HEAT TRANSFER BIBLIOGRAPHY

A66-20180

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ABSTRACTS AND BIBLIOGRAPHY ON AIRCRAFT, GROUND EFFECT MACHINE, AND HELICOPTER AERODYNAMICS
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HELIUM 3

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ABSTRACTS ON LIQUID AND SOLID PROPELLANTS, HIGH ENERGY FUELS, ADVANCED ENERGY SOURCES, AND COMBUSTION FROM SOVIET LITERATURE - ANNOTATED BIBLIOGRAPHY
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BIBLIOGRAPHY WITH ABSTRACTS ON CHEMICAL PROPERTIES, COMPOSITION, MANUFACTURE, AND TESTING OF HIGH EXPLOSIVES
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BIBLIOGRAPHY ON SPECTROSCOPY RELATED TO HIGH TEMPERATURE CHEMISTRY, REACTIONS BETWEEN GASES AND CONDENSED PHASES, AND PLASMA THERMODYNAMICS
REPT.-17

N66-19086

HIGH TEMPERATURE MATERIAL

BIBLIOGRAPHY ON HIGH TEMPERATURE CHEMISTRY AND PHYSICS OF MATERIALS IN CONDENSED STATE

N65-23268

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N65-32378

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ATD-65-112

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ABSTRACTS OF HIGH TEMPERATURE AND LOW TEMPERATURE PLASMA PHYSICS
CPR-2

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HIGH TEMPERATURE RESEARCH

HIGH TEMPERATURE LIQUID METAL TECHNOLOGY - BIBLIOGRAPHY
ENL-896/PR-11/

N65-15839

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REPT.-13

N65-16663

ANNOTATED BIBLIOGRAPHY AND LIST OF SOVIET ARTICLES ON METHODS USED IN HIGH TEMPERATURE MEASUREMENT OF GASES
ATD-P-65-53

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HIGH VACUUM AS ELECTRICAL INSULATOR
IRD-64-50 N66-11654

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BIBLIOGRAPHY ON HOT-WIRE ANEMOMETRY WHICH INCLUDES
ABSTRACTS
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ENVIRONMENT CONCEPT AS PSYCHOLOGICAL FACTOR, AND
PERTINENT LITERATURE REVIEW
TR-33 N66-16507

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BIBLIOGRAPHY N65-19805

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IN SPACE - BIBLIOGRAPHY OF RUSSIAN LITERATURE
ON MANNED SPACE FLIGHT TECHNOLOGY
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ANTHROPOLOGY, HUMAN ENGINEERING, INSTRUMENTATION
AND SIMULATION, AND TRAINING AND LEARNING
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ENGINEERING
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HUMAN FACTOR

HUMAN FACTOR ENGINEERING - BIBLIOGRAPHY
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ENGINEERING
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ABSORPTION ON ANIMALS, FLIGHT MEDICINE,
PSYCHOLOGY, PSYCHIATRY, PHYSIOLOGY, AND HUMAN
PATHOLOGY N65-21202

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EFFECTS OF HUMAN PERFORMANCE ON PRODUCT AND
SYSTEMS EFFECTIVENESS - BIBLIOGRAPHY
RH-3398-J N65-20726

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BIBLIOGRAPHY
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STRUCTURELESS VISUAL FIELD EXPOSURE
TR-34 N66-16508

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PRESSURE EFFECT ON STRUCTURES AND HUMANS -
MEASUREMENTS FROM AIRCRAFT AND WIND TUNNELS
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ABSTRACTS AND ANNOTATED BIBLIOGRAPHY OF RADIO
ASTRONOMY, METEOROLOGY, SATELLITES, WEATHER
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LIGHTNING, AND HURRICANE SEEDING
N66-16443

HYBRID COMPUTER

BIBLIOGRAPHY AND SUMMARY OF METHODS USED IN ERROR
ANALYSIS OF HYBRID COMPUTERS
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ABSTRACTS
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PROBLEMS - ANNOTATED BIBLIOGRAPHY
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ABSTRACTS AND BIBLIOGRAPHY ON SHIP TYPES,
PROPULSION SYSTEMS, HYDRODYNAMIC DESIGN,
STRENGTH COMPUTATIONS, AND VENTILATION, AS WELL
AS DOCKS, NAVIGATION, AND RESCUE TECHNIQUES
N66-19934

HYDROGEN

ANNOTATED BIBLIOGRAPHY ON CRYSTAL STRUCTURE
OF SOLID HYDROGEN, DEUTERIUM AND TRITIUM
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METEOROLOGY AND HYDROLOGY FOR 1964
N65-28181

HYDROLYSIS

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OXIDE SOLS AND URANIUM HYDROLYSIS REACTIONS
CRNL-TM-1052 N66-18285

HYPERSONIC FLIGHT

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RESEARCH, AERODYNAMIC CHARACTERISTICS OF
SUPERSONIC-HYPERSOONIC FLIGHT, HYPERSOONIC
STRUCTURE, FLYING LABORATORY, AND BIBLIOGRAPHY
NASA-SP-60 N65-20162

HYPERVELOCITY IMPACT

ANNOTATED BIBLIOGRAPHY ON PHYSICS OF HYPERVELOCITY
IMPACT AND METEOROIC HAZARD
NASA-TM-X-56505 N65-25011

ICE

ABSTRACTS ON METEOROLOGY - ATMOSPHERICS, DYNAMICS,
INSTABILITIES, SPECTRAL ANALYSIS, HEAT BALANCE,
ICE FORMATION, IONIZATION, WINDS, RADIATION, AND
CIRCULATION
E-TC-CH-64-25 N65-29841

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IN POLAR REGIONS AND COLD WEATHER AREAS
CRREL-12 N66-12524

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METALS - IMPURITY DIFFUSION
CRNL-3795, PT. II N66-13244

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BIBLIOGRAPHY
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HUMAN ENGINEERING IN INDUSTRY - ANNOTATED
BIBLIOGRAPHY N65-19805

ANNOTATED BIBLIOGRAPHY ON INVESTMENT AND OPERATING
COSTS FOR CHEMICAL AND PETROLEUM PLANTS
BM-IC-8265 N66-10624

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WORKING PROCESSES - FACTORY MANAGEMENT AND
PRODUCTION ENGINEERING
W-94 N66-19673

ABSTRACTED SELECTED LISTINGS OF TECHNICAL
DEVELOPMENTS FOR INDUSTRIAL APPLICATIONS -
ELECTRONICS, ENERGY SOURCES, MATERIALS, AND LIFE
SCIENCE PUBLICATIONS
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ANNOTATED BIBLIOGRAPHY OF NASA TECHNICAL BRIEFS
ON ELECTRICAL, ENERGY SOURCES, MATERIALS, LIFE
SCIENCES, AND MECHANICAL INFORMATION
NASA-SP-5021/02/ N66-17584

INFORMATION PROCESSING

ANNOTATED BIBLIOGRAPHY ON INFORMATION PROCESSING

- AND ADVANCED COMMUNICATION TECHNIQUES - THEORY
AND APPLICATIONS OF SPACE COMMUNICATIONS
NASA-SP-7022/03/ N65-31136
- LITERATURE SURVEY OF RESEARCH DEALING WITH
TELECOMMUNICATIONS, ELECTRONICS, INFORMATION
PROCESSING, COMPUTER DESIGN, AND RELATED
SUBJECTS - ANNOTATED BIBLIOGRAPHY N66-15748
- BIBLIOGRAPHY AND ABSTRACTS SUMMARY ON MICROWAVE,
ELECTROMAGNETIC THEORY, AND INFORMATION PROCESS
STUDIES N66-20095
PIBMRI-1278-65
- ABSTRACTS AND BIBLIOGRAPHIC NOTES INFORMATION
PROCESSING, TELECOMMUNICATIONS, ELECTRONICS,
QUALITY CONTROL AND RELIABILITY OF ELECTRONIC
PARTS, INTEGRATED CIRCUITS, AND MICROELECTRONICS
N66-20740
- INFORMATION RETRIEVAL**
INFORMATION RETRIEVAL SYSTEM USING BIBLIOGRAPHY
DEALING WITH POSTCRASH AIRCRAFT FIRE, RESCUE,
AND EVALUATION N66-17396
ADS-16
- INFORMATION THEORY**
INFORMATION THEORY, MEMORY, LEARNING, AND
RETRIEVAL - ANNOTATED BIBLIOGRAPHY N66-20858
HUMRRO-TR-65-13
- INFRARED REFLECTION**
BIBLIOGRAPHY OF PAPERS DEALING WITH REFLECTION AND
TRANSMISSION OF IR MATERIALS A65-20825
- BIBLIOGRAPHY OF INFRARED REFLECTION, REFRACTION,
AND ABSORPTION PROPERTIES OF LIQUID WATER
NRL-BIBL-25 N66-13765
- INSTRUMENT**
BIBLIOGRAPHY ON INSTRUMENTS AND MEASURING
TECHNIQUES IN NUCLEAR PHYSICS N65-30598
AED-C-06-10
- AERIAL OBSERVATIONS OF RAIN AND SNOW CLOUDS -
SELECTED BIBLIOGRAPHY ON INSTRUMENTS AND
OBSERVING TECHNIQUES USED IN CLOUD PHYSICS
N65-33094
- INSTRUMENTATION**
BIBLIOGRAPHY ON SYSTEMS ENGINEERING, PHYSICAL
ANTHROPOLOGY, HUMAN ENGINEERING, INSTRUMENTATION
AND SIMULATION, AND TRAINING AND LEARNING
AD-464531 N65-35343
- INSTRUMENTATION PROGRAM**
ANNOTATED BIBLIOGRAPHY OF SOVIET AEROSPACE
INSTRUMENTATION RESEARCH N65-29703
ATD-P-65-49
- INSULATING MATERIAL**
DIELECTRIC CONSTANTS, DIPOLE MOMENTS, RELAXATION
TIMES, CONDUCTION PHENOMENA, INSULATING FILMS,
BREAKDOWN, MATERIALS, AND APPLICATIONS OF
DIELECTRICS - ANNOTATED BIBLIOGRAPHY N66-16184
NASA-CR-69880
- INTEGRATED CIRCUIT**
ABSTRACTS AND BIBLIOGRAPHIC NOTES INFORMATION
PROCESSING, TELECOMMUNICATIONS, ELECTRONICS,
QUALITY CONTROL AND RELIABILITY OF ELECTRONIC
PARTS, INTEGRATED CIRCUITS, AND MICROELECTRONICS
N66-20740
- INTERCEPTION**
ABSTRACTS OF U.S.S.R. RADIO ELECTRONICS - RADAR,
RECEIVERS, INTERCEPTION DEVICES, ANTENNAS DATA
TRANSMISSION SYSTEMS, NOISE, TELEMETRY, AND
RANGE AND DIRECTION FINDERS N66-13751
AID-U-64-15
- INTERFACE**
BIBLIOGRAPHY ON INTERFACE CONTACT RESISTANCE AND
SURFACE HEAT FLUX AND TEMPERATURE MEASUREMENTS
UCRL-14264 N66-20385
- INTERMETALLICS**
SOLID STATE PHYSICS, POLYMER CHEMISTRY, ORGANIC
AND ORGANOMETALLIC COMPOUNDS, SEMICONDUCTORS,
INTERMETALLICS, PLASTICS, AND NUCLEAR MAGNETIC
RESONANCE - ANNOTATED BIBLIOGRAPHY N66-15498
- INTERPLANETARY FLIGHT**
BIBLIOGRAPHY ON SPACE RESEARCH - ECONOMIC AND
POLITICAL IMPLICATIONS OF SPACE, INTERPLANETARY
FLIGHT, LUNAR FLIGHT, SATELLITES, SPACE SCIENCE,
SPACE APPLICATIONS, AND SPACE TECHNOLOGY
RM-4508 N65-25929
- ANNOTATED BIBLIOGRAPHY ON BIOLOGICAL,
PHYSIOLOGICAL, PSYCHOLOGICAL, AND ENVIRONMENTAL
EFFECTS OF AIR AND INTERPLANETARY FLIGHT UPON MAN
NASA-SP-7011/11/ N65-29648
- ION ENGINE**
BIBLIOGRAPHY ON PLASMA PHYSICS FROM 1955-61
INCLUDING PLASMA KINETICS, GAS DISCHARGES, ION
ENGINES, SHOCK WAVES, ETC, COVERING ALSO SYMPOSIA
AND BOOKS A65-32842
- IONIC PROPULSION**
ABSTRACTS ON ION AND PLASMA PROPULSION - ANNOTATED
BIBLIOGRAPHY N66-14558
AL-65-77
- IONIZATION**
CHARGE TRANSFER COLLISIONS IN GASES - ANNOTATED
BIBLIOGRAPHY N66-14146
AID-U-64-4, PT. I
- IONIZATION CROSS SECTION**
ANNOTATED BIBLIOGRAPHY ON CONTROLLED THERMONUCLEAR
REACTIONS - HOT AND COLD PLASMA, CROSS SECTIONS,
VACUUM AND WALL STUDIES, DIAGNOSTIC TECHNIQUES,
AND CRYOGENICS N65-21621
TID-4005/PT. 5/
- IONIZING RADIATION**
ABSTRACTS OF ARTICLES ON EFFECT OF IONIZING
RADIATION ON ANIMALS AND PLANTS N66-14667
ATD-65-110
- IONOSPHERE**
ABSTRACTS ON TRACKING OF MISSILES AND SPACE
VEHICLES FROM SOVIET OPEN LITERATURE - ION
CLOUDS AND IONOSPHERE PERTURBATIONS, REFLECTION
OF ELECTROMAGNETIC WAVES, AND RADIO ASTRONOMY
ATD-P-65-40 N65-31097
- ABSTRACTS OF SOVIET-BLOC LITERATURE DEALING WITH
RADIO ASTRONOMY, ION CLOUDS, AND IONOSPHERIC
PERTURBATIONS N65-35189
ATD-P-65-51
- IONOSPHERIC COMPOSITION**
ABSTRACT COMPILATION ON SPACECRAFT INTERACTIONS
WITH IONOSPHERE, MAGNETOSPHERE, AND
INTERPLANETARY PLASMA N66-17066
NASA-CR-70362
- IONOSPHERIC ELECTRON DENSITY**
ANNOTATED BIBLIOGRAPHY ON UPPER ATMOSPHERE - SOLAR
RADIATION, IONOSPHERIC ELECTRON CONCENTRATION,
VAN ALLEN RADIATION BELTS, GEOELECTRICITY,
NUCLEAR BURSTS, COMMUNICATIONS, AND METEOROLOGY
AID-P-64-34 N65-15714
- IRON**
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TRANSITION METALS - ANNOTATED BIBLIOGRAPHY
JPRS-28358 N65-16501
- ISOTOPE**
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AND SEPARATIONS CHEMISTRY, ACTIVATION,
BIOLOGICAL ASPECTS, AND BIBLIOGRAPHY
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ELEMENTS, COMPOUNDS, AND ISOTOPES - BIBLIOGRAPHY
AWRE-D-13/65 N65-36351

J

JAPAN

HEAT TRANSFER BIBLIOGRAPHY OF JAPANESE WORKS

INCLUDING CHANNEL FLOW, CONVECTION, MASS TRANSFER,
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SUPERSONIC JET FLOWS
REPT.-65-3 N65-28720

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ANNOTATED BIBLIOGRAPHY ON MIXING OF CONCENTRIC
HIGH VELOCITY AIRSTREAMS
ATD-P-65-96 N66-13434

MIXING OF CONCENTRIC HIGH VELOCITY AIR STREAMS -
JET MIXING FLOW AERODYNAMIC CHARACTERISTICS -
ABSTRACTS
AID-U-64-24 N66-14181

JET PROPULSION

SQUID PROJECT BIBLIOGRAPHY ON JET PROPULSION
UVA-6-R N65-17124

CUMULATIVE INDEX OF JET PROPULSION LABORATORY
BIBLIOGRAPHIES
NASA-CR-63654 N65-31048

K

KINETICS

SOVIET AND FOREIGN PAPERS ON PHYSICS OF BOILING
INCLUDING HEAT TRANSFER, HEAT RELEASE, BUBBLING
PROCESSES, KINETICS AND SONIC ASPECTS OF BOILING
AND BIBLIOGRAPHY A66-20100

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WAVES - ABSTRACTS ON SUPERSONIC COMBUSTION
KINETICS
ATD-P-65-100 N66-15000

L

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ANNOTATED BIBLIOGRAPHY ON DESIGN, EQUIPMENT, AND
OPERATION OF LABORATORIES FOR WORK WITH
RADIOACTIVE MATERIALS
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HEAT AND OXIDATION RESISTANT REINFORCED PLASTICS
AND LAMINATES FOR HIGH TEMPERATURE ENVIRONMENT -
ANNOTATED BIBLIOGRAPHY
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SYSTEMS, ASTRONOMY, OPTICS, AND METALWORKING -
BIBLIOGRAPHY
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SYSTEMS FOR PERIOD JANUARY- JUNE 1965
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ABSTRACTS - ANNOTATED BIBLIOGRAPHY
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SPACE SCIENCE PROGRAM OF USA - THEORETICAL
ASPECTS, SUMMARY OF LAUNCHINGS FOR 1964, LIST OF
RESEARCH PROJECTS AND AGENCIES, AND BIBLIOGRAPHY
N65-29509

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TELLURIDES, AND TIN TELLURIDES

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INFORMATION THEORY, MEMORY, LEARNING, AND
RETRIEVAL - ANNOTATED BIBLIOGRAPHY
HUMRRO-TR-65-13 N66-20858

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DEALING WITH SOLAR SYSTEM, LIFE DETECTION SYSTEM,
ORIGIN OF LIFE AND LIFE IN UNIVERSE
A66-11612

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AND ENGINEERING SCIENCES - RADIOACTIVITY -
DISPERSION HARDENING OF ALLOYS - ULTRASONIC
TREATMENT - PHYSIOLOGY - PSYCHOLOGY
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C INOA - BIBLIOGRAPHY ON MICROSCOPIC NEUTRON
CROSS SECTION DATA, LISTED BY TARGET NUCLEI
AND CROSS SECTION PARAMETER
UNC-5090 N65-30444

NEUTRON CROSS SECTIONS EVALUATION FOR CHEMICAL
ELEMENTS, COMPOUNDS, AND ISOTOPES - BIBLIOGRAPHY
ANRE-O-13/65 N65-36351

BIBLIOGRAPHY AND DATA SURVEY OF NEUTRON CROSS
SECTIONS REPORTED FOR Z GREATER THAN OR EQUAL
TO 93

JAERI-4032 N66-17913

NEUTRON PHYSICS

ANNOTATED BIBLIOGRAPHY ON NEUTRON PHYSICS -
REACTOR PHYSICS, RADIATION SHIELDING, COMPUTER
PROGRAMS, AND RADIATION DETECTION
CRNL-3858, VOL. I N66-12297

NEUTRON SCATTERING

POLARIZATION AND ELASTIC SCATTERING OF PROTONS
AND NEUTRONS FROM NUCLIDES - BIBLIOGRAPHY
LA-3281-MS N65-28247

NIMBUS SATELLITE

LITERATURE SURVEY OF SELECTED ARTICLES DEALING
WITH TIROS AND NIMBUS SATELLITE OBSERVATIONS -
ANNOTATED BIBLIOGRAPHY
TDC-42600 N66-15514

NIOBIUM

ANNOTATED BIBLIOGRAPHY ON PROTECTIVE COATINGS
FOR HIGH TEMPERATURE NIOBIUM APPLICATIONS
PDL-50205 N66-12789

NOCTILUCENT CLOUD

BIBLIOGRAPHY ON NOCTILUCENT, NACREOUS, AND
CIRRIFORM CLOUDS, AND CONDENSATION TRAILS
ERDA-181 N65-25423

NOISE

WORK CAPACITY, PHYSICAL REACTIONS OF MAN, AND
NOISE NORMALIZATION IN LIFE SUPPORT SYSTEMS
DURING SPACE FLIGHTS, AND CHLORELLA CULTURES AS
LINK IN ECOSYSTEM - ABSTRACTS
NASA-TT-F-9536 N65-32876

NONDESTRUCTIVE TESTING

ANNOTATED BIBLIOGRAPHIES ON LIQUID PENETRANTS -
NONDESTRUCTIVE TESTING INFORMATION
AMRA-MS-64-12 N65-22229

ANNOTATED BIBLIOGRAPHY OF THERMAL TESTING
LITERATURE
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NONDESTRUCTIVE TESTING INVOLVING ELECTROMAGNETIC
TEST METHODS - BIBLIOGRAPHY
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TESTING LITERATURE
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AND APPLICATION FOR COMPOSITE MATERIAL
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PROGRAM AND LECTURE ABSTRACTS OF CONFERENCE ON
PHYSICS AND NONDESTRUCTIVE TESTING
AD-624582 N66-16734

NONLINEAR SYSTEM

EFFECTS OF SYSTEM NONLINEARITIES ON HUMAN OPERATOR
TRACKING PERFORMANCE - LITERATURE SURVEY AND
BIBLIOGRAPHY
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ENERGY INTO ELECTRIC ENERGY
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ENERGY - BIBLIOGRAPHY
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PROPULSION, WASTE DISPOSAL, OPERATION, COMPONENT
REQUIREMENTS, PERFORMANCE, AND CONTROL
AEC-C-22-03 N65-19525

NUCLEAR INTERACTION

NUCLEAR INTERACTIONS OF HELIUM 3 - BIBLIOGRAPHY
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NUCLEAR MAGNETIC RESONANCE

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BIBLIOGRAPHY

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COMMON TO ELEMENTARY PARTICLE PHYSICS AND
MANY-BODY PROBLEMS
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NUCLEAR REACTOR PHYSICS, TECHNOLOGY, AND
INSTRUMENTATION, AND RADIOACTIVE ISOTOPE AND
WASTE DISPOSAL - BIBLIOGRAPHY N65-21198
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TECHNIQUES IN NUCLEAR PHYSICS
AED-C-06-10 N65-30598
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NUCLEAR POWER APPLICATIONS FOR SPACE MISSIONS -
BIBLIOGRAPHY
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BIBLIOGRAPHY ON NUCLEAR VESSEL REACTORS, FUEL,
PROPULSION, WASTE DISPOSAL, OPERATION, COMPONENT
REQUIREMENTS, PERFORMANCE, AND CONTROL
AEC-C-22-03 N65-19525
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RADIOISOTOPE HEAT SOURCE - ANNOTATED BIBLIOGRAPHY
ON NUCLEAR CHARACTERISTICS OF RADICACTIVE
ISOTOPES
NASA-CR-68182 N66-12928
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AND TECHNICAL LITERATURE ON NUCLEAR SAFETY
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TECHNOLOGY N66-16406
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PROPULSION, WASTE DISPOSAL, OPERATION, COMPONENT
REQUIREMENTS, PERFORMANCE, AND CONTROL
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BIBLIOGRAPHY ON NUCLEAR VESSEL REACTORS, FUEL,
PROPULSION, WASTE DISPOSAL, OPERATION, COMPONENT
REQUIREMENTS, PERFORMANCE, AND CONTROL
AEC-C-22-03 N65-19525
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EFFECT OF OLIGONUCLEOTIDES ON ACTIVITY OF TUMOR
DEOXYRIBONUCLEIC ACID POLYMERASE, MOSSBAUER
EFFECT IN RARE GASES AND INCLUSION COMPOUNDS, AND
SILVER HALIDES LUMINESCENCE AND PHOTOCONDUCTIVITY
ISS-65/29 N66-19804
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- OCEAN**
ANNOTATED BIBLIOGRAPHY ON LAND AND SEA BREEZE -
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LITERATURE SURVEY OF RESEARCH IN OCEANOGRAPHY AND
NAVIGATION - ANNOTATED BIBLIOGRAPHY N66-15747
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BIBLIOGRAPHY
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STUDY OF INTERNAL OCEAN WAVES
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BIBLIOGRAPHY ON OPACITY CALCULATION
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BIBLIOGRAPHY
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STATIONS, SPACE DYNAMICS, PARAMETER OF ORBITS,
AND MATHEMATICS OF ORBITS
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POLYMER COMPOUNDS OF BORON - LITERATURE REVIEW
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RESONANCE - ANNOTATED BIBLIOGRAPHY
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PLASMA PHYSICS BIBLIOGRAPHY WITH ABSTRACTS ON
STABILITY AND OSCILLATIONS, SHOCK WAVES,
ELECTROMAGNETIC FIELDS, AND OTHER AREAS
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BIBLIOGRAPHY ON RESEARCH OF F-VALUES - OSCILLATOR
STRENGTHS OF SPECTRAL LINES
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HEAT AND OXIDATION RESISTANT REINFORCED PLASTICS
AND LAMINATES FOR HIGH TEMPERATURE ENVIRONMENT -
ANNOTATED BIBLIOGRAPHY
PDC-64-009 N66-14737
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ATMOSPHERIC OZONE - CONCENTRATION, DISTRIBUTION,
DETECTION, AND RELATIONSHIP WITH METEOROLOGICAL
PHENOMENA - BIBLIOGRAPHY
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- P**
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ABSTRACTS ON TRANSPORTATION OF GOODS, WAREHOUSE
STORAGE, LOADING AND UNLOADING METHODS, PACKING,
AND SAFETY N66-15837
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COMPILATION OF ABSTRACTS ON MODEL DESCRIPTIONS,
PROPULSION, INDUSTRIAL MATERIALS, PANEL SYSTEMS
AND INSTRUMENTS, NAVIGATION AND AIR TRAFFIC
CONTROL, SAFETY, AND AERODYNAMICS
N66-15737
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MATERIALS, TRAINING, AND RECOVERY
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TESTING LITERATURE
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MAGNETIC SHIELDING
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INDUSTRIAL, AND RESEARCH FACILITIES
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FREE RADICALS, PHOTOCHEMISTRY, PHOTOLYSIS, AND
SPECTRAL ANALYSIS
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PHOTOCONDUCTIVITY

EFFECT OF OLIGONUCLEOTIDES ON ACTIVITY OF TUMOR
DEOXYRIBONUCLEIC ACID POLYMERASE, MOSSBAUER
EFFECT IN RARE GASES AND INCLUSION COMPOUNDS, AND
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DIFFRACTION TECHNIQUES - PHOTOGRAPHY AND
DIFFRACTIONOMETRY FOR CRYSTALLOGRAPHY

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FREE RADICALS, PHOTOCHEMISTRY, PHOTOLYSIS, AND
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BIBLIOGRAPHY ON BIOSENSORS - MECHANORECEPTORS,
PHOTORECEPTORS, CHEMORECEPTORS, THERMORECEPTORS,
AND ELECTRIC AND MAGNETIC FIELD SENSORS
NASA-CR-63145 N65-25270

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LITERATURE SURVEY AND ANNOTATED BIBLIOGRAPHY ON
CHLOROPHYLL MODIFICATIONS, TRIPLET STATES OF
TETRAPYRROL PIGMENTS, OXYGEN EVOLUTION IN
PHOTOSYNTHESIS, AND STRUCTURE OF TETRAPYRROL
ATD-65-107 N66-14651

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PHOTOCHEMISM AND PHOTOTROPISM
CTR-103 N65-23322

PHYSICAL FITNESS

WORK CAPACITY, PHYSICAL REACTIONS OF MAN, AND
NOISE NORMALIZATION IN LIFE SUPPORT SYSTEMS
DURING SPACE FLIGHTS, AND CHLORELLA CULTURES AS
LINK IN ECOSYSTEM - ABSTRACTS
NASA-TT-F-9536 N65-32876

PHYSICAL PROPERTY

ZIRCONIUM OXIDE STRUCTURAL AND PHYSICAL
PROPERTIES - BIBLIOGRAPHY
ARL-64-205 N65-18986

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CHEMISTRY OF REFRACTORY AND OTHER MATERIALS
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ABSTRACTS
N66-15736

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BIOLOGY, SPACE PHYSIOLOGY, AND SPACE VEHICLE
ECOLOGY - LIFE SUPPORT SCIENCES
ATD-P-64-66 N65-27748

ABSTRACTS ON SPACE RELATED SCIENCES, PHYSICAL LIFE
AND ENGINEERING SCIENCES - RADIOACTIVITY -
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TREATMENT - PHYSIOLOGY - PSYCHOLOGY
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ANNOTATED BIBLIOGRAPHY OF AEROSPACE MEDICINE AND
BIOLOGY WITH SUBJECT, AUTHOR, AND CORPORATE
SOURCE INDEXES - PHYSIOLOGICAL, PSYCHOLOGICAL,
AND SPACE ENVIRONMENT EFFECTS ON MAN
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PLANETARY ATMOSPHERE

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EXPERIMENTS, TYPES OF MEASUREMENTS FOR
RECOMMENDED PROGRAM, AND ANNOTATED BIBLIOGRAPHY
N66-14331

PLANETARY ENVIRONMENT

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AND SPACE ENVIRONMENTS IN RELATION TO FLIGHT
MECHANICS AND AERODYNAMICS OF SPACE TRAVEL
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LUNAR, PLANETARY, AND SPACE ENVIRONMENT PARAMETERS
AFFECTING SPACE VEHICLE DESIGN AND FLIGHT
MECHANICS - ANNOTATED BIBLIOGRAPHY
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PLANETARY EXPLORATION

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VOSKHOD, FUTURE PLANS, BIOASTRONAUTICS, LUNAR
AND MARS FLIGHTS, AND EXOBIOLOGY

SUBJECT INDEX

PROPELLANT SENSITIVITY

ATD-P-65-19 N65-25247

BIBLIOGRAPHY ON PLANET MERCURY
R64SC20 N66-10436

PLANETARY RADIATION
PLANETARY POLARIZATION AND LUNAR SURFACE -
LITERATURE SURVEY AND BIBLIOGRAPHY
RM-271 N65-36207

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BIBLIOGRAPHY ON EFFECTS OF RADIONUCLIDES ON
METABOLISM OF WILD SPECIES OF PLANTS AND
ANIMALS
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RADIATION ON ANIMALS AND PLANTS
ATD-65-110 N66-14667

PLASMA PHYSICS
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INCLUDING PLASMA KINETICS, GAS DISCHARGES, ION
ENGINES, SHOCK WAVES, ETC., COVERING ALSO SYMPOSIA
AND BOOKS A65-32842

ANNOTATED BIBLIOGRAPHY ON CONTROLLED FUSION,
PLASMA PHYSICS, MAGNETOHYDRODYNAMICS, AND
MAGNETIC FIELDS
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REACTIONS - HOT AND COLD PLASMA, CROSS SECTIONS,
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AND CRYOGENICS
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MAGNETOACOUSTICS, PLASMA PHYSICS, AND
MAGNETOHYDRODYNAMICS
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ELECTROMAGNETIC FIELDS, AND OTHER AREAS
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PLASMA PHYSICS
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AND CONDENSED PHASES, AND PLASMA THERMODYNAMICS
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ABSTRACTS ON ION AND PLASMA PROPULSION - ANNOTATED
BIBLIOGRAPHY
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INTERACTIONS OF SPACECRAFT AND OTHER MOVING
BODIES WITH NATURAL PLASMAS - BIBLIOGRAPHY
NASA-CR-71204 N66-19640

PLASTIC
SOLID STATE PHYSICS, POLYMER CHEMISTRY, ORGANIC
AND ORGANOMETALLIC COMPOUNDS, SEMICONDUCTORS,
INTERMETALLICS, PLASTICS, AND NUCLEAR MAGNETIC
RESONANCE - ANNOTATED BIBLIOGRAPHY
N66-15498

PLUTONIUM
ANNOTATED BIBLIOGRAPHY OF UNCLASSIFIED LITERATURE
ON PLUTONIUM ELEMENTS - AMERICIUM, BERKELIUM,
CALIFORNIUM, CURIUM, EINSTEINIUM, FERMIUM,
LAWRENCIUM, MENDELEVIUM AND NOBELIUM
AERE-R-4761 N65-25183

ANNOTATED BIBLIOGRAPHY ON ANALYTICAL METHODOLOGY
USED IN ANALYSIS OF PLUTONIUM, AND PLUTONIUM
ALLOYS AND COMPOUNDS

ANL-6956 N65-34212

PLUTONIUM COMPOUND
DISSOLUTION DATA FOR PLUTONIUM DIOXIDE -
BIBLIOGRAPHY
MLM-1264 N65-35363

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IN POLAR REGIONS AND COLD WEATHER AREAS
CRREL-12 N66-12524

POLARIZATION
POLARIZATION AND ELASTIC SCATTERING OF PROTONS
AND NEUTRONS FROM NUCLIDES - BIBLIOGRAPHY
LA-3281-MS N65-28247

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LITERATURE SURVEY AND BIBLIOGRAPHY
RM-271 N65-36207

SURVEY IN FORM OF TABLES AND GRAPHS OF SURFACE
BRIGHTNESS AND DEGREE OF POLARIZATION OF
ZODIACAL LIGHT AS FUNCTION OF ELONGATION IN
PLANE OF ELLIPTIC - RELATED BIBLIOGRAPHY
NASA-CR-58323 N66-15052

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ANNOTATED BIBLIOGRAPHY ON GROUNDWATER POLLUTION
AND WASTE WATER PURIFICATION
TDCR-42563 N66-16452

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BIBLIOGRAPHY
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EFFECT OF OLIGONUCLEOTIDES ON ACTIVITY OF TUMOR
DEOXYRIBONUCLEIC ACID POLYMERASE, MOSSBAUER
EFFECT IN RARE GASES AND INCLUSION COMPOUNDS, AND
SILVER HALIDES LUMINESCENCE AND PHOTOCONDUCTIVITY
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POLYMER CHEMISTRY
SOLID STATE PHYSICS, POLYMER CHEMISTRY, ORGANIC
AND ORGANOMETALLIC COMPOUNDS, SEMICONDUCTORS,
INTERMETALLICS, PLASTICS, AND NUCLEAR MAGNETIC
RESONANCE - ANNOTATED BIBLIOGRAPHY
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POTASSIUM
BIBLIOGRAPHY ON PROPERTIES OF NITRATES, CHLORATES,
AND BROMATES OF SODIUM, POTASSIUM, AND RUBIDIUM
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LS-BIB-64-3 N65-21697

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HYDROMETEOROLOGY - STRATOSPHERICAL CYCLONES AND
ANTICYCLONES, WEATHER NAVIGATION AID FOR SHIPS,
PRECIPITATION, AND BIBLIOGRAPHY
JPRS-29481 N65-23439

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ANNOTATED BIBLIOGRAPHY OF SONIC BOOM THEORY AND
PRESSURE EFFECT ON STRUCTURES AND HUMANS -
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RAE-LIB-BIBL-255 N65-24967

PROPAGATION VELOCITY
BIBLIOGRAPHY ON FLAME PROPAGATION VELOCITY
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PROPELLANT
HIGH ENERGY PROPELLANTS - CONTINUING BIBLIOGRAPHY
NASA-SP-7002/01/ N65-19703

PROPELLANT SENSITIVITY
ANNOTATED ABSTRACTS OF MATERIALS SCIENCE TECHNICAL
MEMORANDUM - PLASTIC, COMPOSITE, EXPLOSIVE,
LUBRICANT, ENGINEERING, PROPELLANT, ALLCY, AND
HEAT CARRYING MATERIALS

NASA-TM-X-53378 N66-16157

PROPULSION
 COMPILATION OF ABSTRACTS ON MODEL DESCRIPTIONS, PROPULSION, INDUSTRIAL MATERIALS, PANEL SYSTEMS AND INSTRUMENTS, NAVIGATION AND AIR TRAFFIC CONTROL, SAFETY, AND AERODYNAMICS N66-15737

PROPULSION SYSTEM
 ABSTRACTS AND BIBLIOGRAPHY ON SHIP TYPES, PROPULSION SYSTEMS, HYDRODYNAMIC DESIGN, STRENGTH COMPUTATIONS, AND VENTILATION, AS WELL AS DOCKS, NAVIGATION, AND RESCUE TECHNIQUES N66-19934

PROTECTIVE COATING
 ANNOTATED BIBLIOGRAPHY ON PROTECTIVE COATINGS FOR HIGH TEMPERATURE NIOBIUM APPLICATIONS PDL-50205 N66-12789

PROTON SCATTERING
 POLARIZATION AND ELASTIC SCATTERING OF PROTONS AND NEUTRONS FROM NUCLIDES - BIBLIOGRAPHY LA-3281-MS N65-28247

PSYCHOLOGICAL EFFECT
 ANNOTATED BIBLIOGRAPHY OF AEROSPACE MEDICINE AND BIOLOGY WITH SUBJECT, AUTHOR, AND CORPORATE SOURCE INDEXES - PHYSIOLOGICAL, PSYCHOLOGICAL, AND SPACE ENVIRONMENT EFFECTS ON MAN NASA-SP-7011/18/ N66-14160

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 ENVIRONMENT CONCEPT AS PSYCHOLOGICAL FACTOR, AND PERTINENT LITERATURE REVIEW TR-33 N66-16507

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PSYCHOMOTOR PERFORMANCE
 MOTOR SKILLS BIBLIOGRAPHY A65-82344

SELECTED LIST OF REFERENCES ON MOTOR SKILLS A66-80140

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 CENTRIFUGAL PUMP AND COMPRESSOR IMPELLERS, GAS AND STEAM TURBINE ROTORS, AND ROTATING DISKS - ANNOTATED BIBLIOGRAPHY B1B-17 N65-36379

PURITY
 ANNOTATED BIBLIOGRAPHY OF SOVIET AND SOVIET-BLOC ARTICLES ON HIGH PURITY METALS ATD-65-109 N66-14700

PYROLYSIS
 PYROLYSIS OF POLYMERS AND CARBOHYDRATES - BIBLIOGRAPHY MLM-1271 N65-36214

Q

QUALITY CONTROL
 IMPROVEMENTS ON ANALYTICAL METHODS, ELECTROANALYTICAL STUDIES, EQUIPMENT, SERVICES, QUALITY CONTROL - ABSTRACTS OF PUBLICATIONS IDU-14655 N65-24632

OPERATIONS RESEARCH BIBLIOGRAPHY - GAME THEORY, COMPUTER PROGRAMMING, MANAGEMENT PLANNING, AND QUALITY CONTROL

TDCK-40683 N66-15402

ABSTRACTS AND BIBLIOGRAPHIC NOTES INFORMATION PROCESSING, TELECOMMUNICATIONS, ELECTRONICS, QUALITY CONTROL AND RELIABILITY OF ELECTRONIC PARTS, INTEGRATED CIRCUITS, AND MICROELECTRONICS N66-20740

QUANTUM GENERATOR
 ANNOTATED BIBLIOGRAPHY ON COMPOUND SEMICONDUCTORS ATD-65-99 N66-16945

QUANTUM THEORY
 BIBLIOGRAPHY ON QUANTUM THEORY OF MANY-PARTICLE SYSTEMS ARL-65-25 N65-19620

ABSTRACTS ON QUANTUM THEORY, RELATIVISTIC MECHANICS, AND PARTICLE MOTION AD-619183 N65-35048

R

RADAR
 ABSTRACTS OF U.S.S.R. RADIO ELECTRONICS - RADAR, RECEIVERS, INTERCEPTION DEVICES, ANTENNAS DATA TRANSMISSION SYSTEMS, NOISE, TELEMETRY, AND RANGE AND DIRECTION FINDERS AID-U-64-15 N66-13751

ABSTRACTS AND BIBLIOGRAPHY ON TELECOMMUNICATIONS, RADAR, ELECTROMAGNETIC RADIATION, INFORMATION PROCESSING, COMPUTERS, MICROELECTRONICS, AND OSCILLATORS AND MAGNIFIERS N66-15939

RADAR REFLECTOR
 BIBLIOGRAPHY OF ARTICLES ON RADAR REFLECTIVITY AND RELATED SUBJECTS, 1957-1964 A66-21614

RADIATION
 ABSTRACTS ON METEOROLOGY - ATMOSPHERICS, DYNAMICS, INSTABILITIES, SPECTRAL ANALYSIS, HEAT BALANCE, ICE FORMATION, IONIZATION, WINDS, RADIATION, AND CIRCULATION E-TC-CH-64-25 N65-29841

RADIATION, ATMOSPHERIC CHEMISTRY, AND SEA ICE STUDIES IN ARCTIC AREAS - ANNOTATED BIBLIOGRAPHY AD-624294 N66-17603

RADIATION ABSORPTION
 ANNOTATED BIBLIOGRAPHY ON EFFECTS OF RADIATION ABSORPTION ON ANIMALS, FLIGHT MEDICINE, PSYCHOLOGY, PSYCHIATRY, PHYSIOLOGY, AND HUMAN PATHOLOGY N65-21202

RADIATION BELT
 BIBLIOGRAPHY ON SOLAR WIND EFFECT, RADIATION AND ARTIFICIAL RADIATION BELTS, AURORA, SOLAR ENERGY PARTICLES, GALACTIC COSMIC RAYS, GEOMAGNETISM, AND NEUTRONS NASA-TM-X-55192 N65-21659

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- ON MICROELECTRONICS AND MATERIALS - ANNOTATED
BIBLIOGRAPHY
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BIBLIOGRAPHY
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AND ORGANISMS
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ABSTRACTS DEALING WITH RADIATION EXPOSURE,
PSYCHOLOGY AND PSYCHIATRY, PHARMACCOLOGY AND
TOXICOLOGY, AND OTHER ASPECTS OF MILITARY
MEDICINE - BIBLIOGRAPHY N66-15746
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BIBLIOGRAPHY ON BIOLOGICAL EFFECTS AND HAZARDS OF
LASER RADIATION
T5-1245/3111 N65-33997
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ANNOTATED BIBLIOGRAPHY ON USE OF RADIOISOTOPES IN
MEDICAL DIAGNOSIS, THERAPY, AND RESEARCH
TID-3077, SUPPL. 1 N66-11914
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ANNOTATED BIBLIOGRAPHY OF SOVIET SCIENTIFIC
AND TECHNICAL LITERATURE ON NUCLEAR SAFETY
ATD-B-65-76 N66-11853
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BIBLIOGRAPHY, SUBJECT AND AUTHOR INDEX OF
RADIATION SHIELDING INFORMATION
ORNL-RSIC-5 N65-26999
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REACTOR PHYSICS, RADIATION SHIELDING, COMPUTER
PROGRAMS, AND RADIATION DETECTION
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MEDICAL DIAGNOSIS, THERAPY, AND RESEARCH
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ABSTRACTS ON TRACKING OF MISSILES AND SPACE
VEHICLES FROM SOVIET OPEN LITERATURE - ION
CLOUDS AND IONOSPHERE PERTURBATIONS, REFLECTION
OF ELECTROMAGNETIC WAVES, AND RADIO ASTRONOMY
ATD-P-65-40 N65-31097
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RADIO ASTRONOMY, ION CLOUDS, AND IONOSPHERIC
PERTURBATIONS
ATD-P-65-51 N65-35189
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RB-125 N66-10170
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ASTRONOMY, METEOROLOGY, SATELLITES, WEATHER
FORECASTING, AIR CONTAMINATION, STORM DETECTION,
LIGHTNING, AND HURRICANE SEEDING N66-16443
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ANNOTATED BIBLIOGRAPHY ON RADIO COMMUNICATIONS
EQUIPMENT AND COMMUNICATIONS FACILITIES AND
LOCATIONS IN U.S.S.R.
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ABSTRACTS OF U.S.S.R. RADIO ELECTRONICS - RADAR,
RECEIVERS, INTERCEPTION DEVICES, ANTENNAS DATA
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RANGE AND DIRECTION FINDERS
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ANNOTATED BIBLIOGRAPHY ON RADIO COMMUNICATIONS
EQUIPMENT AND COMMUNICATIONS FACILITIES AND
LOCATIONS IN U.S.S.R.
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TECHNOLOGY - BIBLIOGRAPHY AND ABSTRACTS
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DYNAMICS, SPACE RESEARCH BIBLIOGRAPHY, SATELLITE
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SATELLITE OBSERVATIONS N65-24650
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BIBLIOGRAPHY
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PROPAGATION OF RADIO WAVES
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ANNOTATED BIBLIOGRAPHY ON PHYSICAL AND CHEMICAL
METHODS FOR REMOVAL OF RADIOACTIVE CONTAMINATION
TID-3535, SUPPL. 1 N65-24262
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SELECTED BIBLIOGRAPHY ON TERRESTRIAL AND
FRESHWATER RADIOECOLOGY, WASTE DISPOSAL, AND
BIOLOGICAL ASPECTS OF RADIOACTIVE FALLOUT
TID-3910, SUPPL. 3 N66-18767
- RADIOACTIVE ISOTOPE**
NUCLEAR REACTOR PHYSICS, TECHNOLOGY, AND
INSTRUMENTATION, AND RADIOACTIVE ISOTOPE AND
WASTE DISPOSAL - BIBLIOGRAPHY N65-21198
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INSTRUMENTS FOR RADIOACTIVE ISOTOPES
TID-3512, SUPPL. 1 N65-25023
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MEDICAL DIAGNOSIS, THERAPY, AND RESEARCH
TID-3077, SUPPL. 1 N66-11914
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ON NUCLEAR CHARACTERISTICS OF RADIOACTIVE
ISOTOPES
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ANNOTATED BIBLIOGRAPHY ON DESIGN, EQUIPMENT, AND
OPERATION OF LABORATORIES FOR WORK WITH
RADIOACTIVE MATERIALS
TID-3545, REV. 1 N66-12484
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BIBLIOGRAPHY ON NUCLEAR VESSEL REACTORS, FUEL,
PROPULSION, WASTE DISPOSAL, OPERATION, COMPONENT
REQUIREMENTS, PERFORMANCE, AND CONTROL
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INSTRUMENTATION, AND RADIOACTIVE ISOTOPE AND
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RADIOCHEMISTRY OF SODIUM - ISOTOPES, ANALYTICAL
AND SEPARATIONS CHEMISTRY, ACTIVATION,
BIOLOGICAL ASPECTS, AND BIBLIOGRAPHY
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AND MICORADIOGRAPHIC LITERATURE
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RAIN

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SELECTED BIBLIOGRAPHY ON INSTRUMENTS AND
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PROJECT, SURVEYOR PROJECT, AND OTHER SPACE
PROGRAMS, AND SPACE SCIENCES
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REACTOR

BIBLIOGRAPHY ON NUCLEAR VESSEL REACTORS, FUEL,
PROPULSION, WASTE DISPOSAL, OPERATION, COMPONENT
REQUIREMENTS, PERFORMANCE, AND CONTROL
AEC-C-22-03 N65-19525

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AND REACTOR OPERATION AND RESEARCH
ORNL-NSIC-8 N65-21369

REACTOR PHYSICS

ANNOTATED BIBLIOGRAPHY ON NEUTRON PHYSICS -
REACTOR PHYSICS, RADIATION SHIELDING, COMPUTER
PROGRAMS, AND RADIATION DETECTION
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REACTOR SAFETY

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AND REACTOR OPERATION AND RESEARCH
ORNL-NSIC-8 N65-21369

REACTOR TECHNOLOGY

NUCLEAR REACTOR PHYSICS, TECHNOLOGY, AND
INSTRUMENTATION, AND RADIOACTIVE ISOTOPE AND
WASTE DISPOSAL - BIBLIOGRAPHY N65-21198

ANNOTATED BIBLIOGRAPHY OF REPORTS, PUBLISHED
LITERATURE AND PATENTS CONCERNING TECHNOLOGY
OF PULSED NEUTRON REACTOR FACILITIES
TID-3571/SUPPL. 1/ N66-13927

ANNOTATED BIBLIOGRAPHY ON NUCLEAR AND REACTOR
TECHNOLOGY N66-16406

RECORDING INSTRUMENT

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MATERIALS, AND TECHNIQUES, DISK-DRLM FILE
APPLICATIONS, AND DATA STORAGE SYSTEMS
T5-1585/3111 N66-16490

REENTRY

BIBLIOGRAPHY OF PLASMA PHYSICS - ATMOSPHERIC
REENTRY OF SPACE VEHICLES, ELECTROMAGNETIC WAVE
PROPAGATION, ANTENNA BREAKDOWN, GROUND-BASED
REENTRY TEST FACILITIES, AND PLASMA DIAGNOSTICS
CAL-ER/RIS-3 N65-24842

REENTRY COMMUNICATION

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MAGNETOACOUSTICS, PLASMA PHYSICS, AND
MAGNETOHYDRODYNAMICS
ATD-P-65-73 N65-36571

COMPILATION OF ABSTRACTS ON REENTRY COMMUNICATIONS
STUDIES
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REFRACTION

BIBLIOGRAPHY OF INFRARED REFLECTION, REFRACTION,
AND ABSORPTION PROPERTIES OF LIQUID WATER
NRL-BIBL-25 N66-13765

REFRACTIVE INDEX

BIBLIOGRAPHY OF PAPERS DEALING WITH REFLECTION AND
TRANSMISSION OF IR MATERIALS A65-20825

REFRACTORY MATERIAL

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CHEMISTRY OF REFRACTORY AND OTHER MATERIALS
N66-13522

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CHEMISTRY OF REFRACTORY MATERIALS IN LIQUID AND
SOLID STATE N66-15417

REFUELING

BIBLIOGRAPHY ON FLIGHT NAVIGATION SYSTEMS, FLIGHT
SAFETY, AIRCRAFT REFUELING, AND AERODYNAMICS
N65-21184

REINFORCED MATERIAL

FILAMENT WOUND STRUCTURES, REVIEW OF RECENT
INVESTIGATIONS A65-32657

REINFORCED PLASTIC

HEAT AND OXIDATION RESISTANT REINFORCED PLASTICS
AND LAMINATES FOR HIGH TEMPERATURE ENVIRONMENT -
ANNOTATED BIBLIOGRAPHY
PDC-64-009 N66-14737

RELATIVISTIC THEORY

ABSTRACTS ON QUANTUM THEORY, RELATIVISTIC
MECHANICS, AND PARTICLE MOTION
AD-619183 N65-35048

RELAXATION TIME

DIELECTRIC CONSTANTS, DIPOLE MOMENTS, RELAXATION
TIMES, CONDUCTION PHENOMENA, INSULATING FILMS,
BREAKDOWN, MATERIALS, AND APPLICATIONS OF
DIELECTRICS - ANNOTATED BIBLIOGRAPHY
NASA-CR-69880 N66-16184

RELAY

ANNOTATED BIBLIOGRAPHY ON AIRCRAFT CIRCUIT
BREAKERS, RELAYS, CONTACTORS, GENERATOR CONTROL
BOXES, AND STORAGE BATTERY SWITCHING BOXES
ATD-B-65-54 N65-32205

RELIABILITY

SURVEY OF COMPUTER PROGRAMMING METHODS ADAPTABLE
TO SYSTEM ANALYSIS FOR RELIABILITY, SYSTEM
EFFECTIVENESS, MAINTAINABILITY, SIMULATION, AND
CIRCUIT AND FAILURE MODE ANALYSIS - BIBLIOGRAPHY
GEM-1 N66-13752

ABSTRACTS AND BIBLIOGRAPHIC NOTES INFORMATION
PROCESSING, TELECOMMUNICATIONS, ELECTRONICS,
QUALITY CONTROL AND RELIABILITY OF ELECTRONIC
PARTS, INTEGRATED CIRCUITS, AND MICROELECTRONICS
N66-20740

REMOTE CONTROL

ANNOTATED BIBLIOGRAPHY ON CYBERNETICS, AUTOMATION,
AND TELEMECHANICS
FTD-MT-63-191 N65-29125

RESEARCH FACILITY

PROJECTS CONDUCTED AT NEW MATERIALS SCIENCES
RESEARCH FACILITY - ANNOTATED BIBLIOGRAPHY
AR-4 N65-24420

ANNOTATED BIBLIOGRAPHY ON DESIGN, EQUIPMENT, AND
OPERATION OF LABORATORIES FOR WORK WITH
RADIOACTIVE MATERIALS
TID-3545, REV. 1 N66-12484

U.S.S.R. 300-METER METEOROLOGICAL TOWER -
FACILITY, PERSONNEL, PROGRAM, AND ABSTRACTS OF
LOWER ATMOSPHERIC RESEARCH
AID-U-64-6 N66-13757

RESEARCH PROJECT

PROJECTS CONDUCTED AT NEW MATERIALS SCIENCES
RESEARCH FACILITY - ANNOTATED BIBLIOGRAPHY
AR-4 N65-24420

BIBLIOGRAPHY ON CURRENT AERODYNAMIC RESEARCH
ARC-CP-650 N65-26432

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ASPECTS, SUMMARY OF LAUNCHINGS FOR 1964, LIST OF
RESEARCH PROJECTS AND AGENCIES, AND BIBLIOGRAPHY
N65-29509

RESISTIVITY

ANNOTATED BIBLIOGRAPHY ON MEASUREMENT OF BULK
RESISTIVITY OF SEMICONDUCTOR MATERIALS FOR

- ELECTRON DEVICE
NBS-TN-232 N65-29825
- RETRIEVAL
INFORMATION THEORY, MEMORY, LEARNING, AND
RETRIEVAL - ANNOTATED BIBLIOGRAPHY
HUMRO-TR-65-13 N66-20858
- RHODIUM
RADIOCHEMISTRY OF RHODIUM - ISOTOPES, ANALYTICAL
AND SEPARATIONS CHEMISTRY, ACTIVATION,
BIOLOGICAL ASPECTS, AND BIBLIOGRAPHY
NAS-NS-3008/REV./ N65-27920
- ROCKET
BIBLIOGRAPHY OF REPORTS AND REPRINTS COVERING
ROCKETS AND SATELLITES N65-32393
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STRUCTURAL INTEGRITY AND SUMMARY REVIEW ON
DEVELOPMENTS IN LINEAR VISCOELASTIC STRESS
ANALYSIS
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CENTRIFUGAL PUMP AND COMPRESSOR IMPELLERS, GAS AND
STEAM TURBINE ROTORS, AND ROTATING DISKS -
ANNOTATED BIBLIOGRAPHY
BIB-17 N65-36379
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BIBLIOGRAPHY ON PROPERTIES OF NITRATES, CHLORATES,
AND BROMATES OF SODIUM, POTASSIUM, AND RUBIDIUM
PA-TR-3161 N65-19482
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LASER BIBLIOGRAPHY / JUNE TO DECEMBER 1964/
A65-32749

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ABSTRACTS ON TRANSPORTATION OF GOODS, WAREHOUSE
STORAGE, LOADING AND UNLOADING METHODS, PACKING,
AND SAFETY N66-15837
- SAFETY DEVICE
ANNOTATED BIBLIOGRAPHY OF SOVIET SCIENTIFIC
AND TECHNICAL LITERATURE ON NUCLEAR SAFETY
ATD-B-65-76 N66-11853
- SALT
ALUMINUM SALTS OF SUBSTITUTED BENZOIC ACIDS FOR
USE AS HIGH TEMPERATURE GREASE THICKENERS -
BIBLIOGRAPHY WITH ABSTRACTS
AFML-TR-64-324 N65-31634
- SAMPLED DATA SYSTEM
BIBLIOGRAPHY AND SUMMARY OF METHODS USED IN ERROR
ANALYSIS OF HYBRID COMPUTERS
NASA-CR-68405 N66-13078
- SAMPLING
ABSTRACTS OF PRESENTATIONS AT HIGH PRESSURE
SAMPLING CONFERENCE
AD-618566 N65-33908
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POLITICAL IMPLICATIONS OF SPACE, INTERPLANETARY
FLIGHT, LUNAR FLIGHT, SATELLITES, SPACE SCIENCE,
SPACE APPLICATIONS, AND SPACE TECHNOLOGY
RM-4508 N65-25929
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ROCKETS AND SATELLITES N65-32393
- SATELLITE NAVIGATION SYSTEM
GEODETIC AND TRANSIT SATELLITE NAVIGATION,
TRAJECTORY STABILITY AND CONTROL, TELEMETRY,
VISUAL OBSERVATION AND TRACKING EQUIPMENT -
BIBLIOGRAPHY AND ABSTRACTS
TDCK-43209 N66-19181
- SATELLITE OBSERVATION
CONFERENCE ON SATELLITE TRACKING, TELEMETRY, AND
DYNAMICS, SPACE RESEARCH BIBLIOGRAPHY, SATELLITE
RADIO SIGNALS FOR STUDYING IONOSPHERE, AND
SATELLITE OBSERVATIONS N65-24650

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BIBLIOGRAPHY AND ABSTRACTS ON ORBIT DETERMINATION,
PROGRAMS AND SATELLITE SYSTEMS, TRACKING
STATIONS, SPACE DYNAMICS, PARAMETER OF ORBITS,
AND MATHEMATICS OF ORBITS
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ORBITAL THEORY, LUNAR-SATELLITE MOTION, ARTIFICIAL
ASTEROIDS, GEOMAGNETIC FIELD, GEODESY, NAVIGATION,
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CONFERENCE ON SATELLITE TRACKING, TELEMETRY, AND
DYNAMICS, SPACE RESEARCH BIBLIOGRAPHY, SATELLITE
RADIO SIGNALS FOR STUDYING IONOSPHERE, AND
SATELLITE OBSERVATIONS N65-24650
- SATURATION
BIBLIOGRAPHY OF SATURATION PROPERTIES OF CRYOGENIC
FLUIDS IN SOLID, LIQUID, AND VAPOR PHASES
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BIBLIOGRAPHY OF RECENT DEVELOPMENTS AND DATA ON
NUCLEAR CROSS SECTIONS
WASH-1056 N65-27022
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CROSS SCATTERING DATA
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STUDIES IN ARCTIC AREAS - ANNOTATED BIBLIOGRAPHY
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SINGLE CRYSTAL HIGH PURITY SILICON CARBIDE FOR
SEMICONDUCTORS - BIBLIOGRAPHY AND TECHNOLOGICAL
SURVEY
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RESISTIVITY OF SEMICONDUCTOR MATERIALS FOR
ELECTRON DEVICE
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AND ORGANOMETALLIC COMPOUNDS, SEMICONDUCTORS,
INTERMETALLICS, PLASTICS, AND NUCLEAR MAGNETIC
RESONANCE - ANNOTATED BIBLIOGRAPHY N66-15498
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BIBLIOGRAPHY ON SEMICONDUCTOR RELIABILITY
CLASSIFIED UNDER APPLICATIONS /COMPUTERS, RADIO,
SPACECRAFT, ETC/, COSTS, DEVICES, ENVIRONMENTS,
NETWORKS, PRODUCTION, ETC A66-16308
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ANNOTATED BIBLIOGRAPHY ON COMPOUND SEMICONDUCTORS
ATD-65-99 N66-16945
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PHOTORECEPTORS, CHEMORECEPTORS, THERMORECEPTORS,
AND ELECTRIC AND MAGNETIC FIELD SENSORS
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ISOLATION AND INVARIANCE, STIMULUS DEPRIVATION,
PATTERNED STIMULATION, CONFINEMENT, SOCIAL
ISOLATION, MONTGONY, AND BRAINWASHING N66-15552
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BIBLIOGRAPHY ON SENSORY DEPRIVATION, SENSORY
ISOLATION AND INVARIANCE, STIMULUS DEPRIVATION,
PATTERNED STIMULATION, CONFINEMENT, SOCIAL

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N66-15552
- SHELL STABILITY**
BIBLIOGRAPHY ON CONICAL SHELL INSTABILITY
NASA-CR-70457 N66-17475
- SHIP**
COMPILATION OF ABSTRACTS ON SHIPBUILDING AND
NAVIGATION TECHNOLOGY N66-15872
- SHIP HULL**
SHIP HULL VIBRATION MEASUREMENTS, CODE FOR
CLASSIFYING VIBRATION CHARACTERISTICS OF
DIFFERENT SHIPS, AND BIBLIOGRAPHY ON SHIP AND
SHIP MACHINERY VIBRATION
DTMB-1891 N65-22948
- SHIP PROPULSION**
ABSTRACTS AND BIBLIOGRAPHY ON SHIP TYPES,
PROPULSION SYSTEMS, HYDRODYNAMIC DESIGN,
STRENGTH COMPUTATIONS, AND VENTILATION, AS WELL
AS DOCKS, NAVIGATION, AND RESCUE TECHNIQUES
N66-19934
- SHOCK WAVE**
BIBLIOGRAPHY ON PLASMA PHYSICS FROM 1955-61
INCLUDING PLASMA KINETICS, GAS DISCHARGES, ION
ENGINES, SHOCK WAVES, ETC, COVERING ALSO SYMPOSIA
AND BOOKS A65-32842
- SUPERSONIC COMBUSTION BEHIND SHOCK AND DETONATION
WAVES - ABSTRACTS ON SUPERSONIC COMBUSTION
KINETICS
ATD-P-65-100 N66-15000
- PLASMA PHYSICS BIBLIOGRAPHY WITH ABSTRACTS ON
STABILITY AND OSCILLATIONS, SHOCK WAVES,
ELECTROMAGNETIC FIELDS, AND OTHER AREAS
ATD-P-65-82 N66-16758
- SHORT WAVE RADIATION**
SHORT-WAVE AND PARTICLE RADIATION EFFECT ON
GLASSES - ANNOTATED BIBLIOGRAPHY
NASA-CR-60407 N65-15819
- SILICA**
ABSTRACTS AND BIBLIOGRAPHY ON CRYSTALLOGRAPHY OF
BORON OXIDE, SILICA, AND GERMANIUM OXIDE
PR-2 N66-18491
- SILICON CARBIDE**
SINGLE CRYSTAL HIGH PURITY SILICON CARBIDE FOR
SEMICONDUCTORS - BIBLIOGRAPHY AND TECHNOLOGICAL
SURVEY
RSIC-381 N65-26989
- SILVER HALIDE**
EFFECT OF OLIGONUCLEOTIDES ON ACTIVITY OF TUMOR
DEOXYRIBONUCLEIC ACID POLYMERASE, MOSSBAUER
EFFECT IN RARE GASES AND INCLUSION COMPOUNDS, AND
SILVER HALIDES LUMINESCENCE AND PHOTOCONDUCTIVITY
ISS-65/29 N66-19804
- SIMULATION**
BIBLIOGRAPHY ON SYSTEMS ENGINEERING, PHYSICAL
ANTHROPOLOGY, HUMAN ENGINEERING, INSTRUMENTATION
AND SIMULATION, AND TRAINING AND LEARNING
AD-464531 N65-35343
- SINGLE CRYSTAL**
SINGLE CRYSTAL HIGH PURITY SILICON CARBIDE FOR
SEMICONDUCTORS - BIBLIOGRAPHY AND TECHNOLOGICAL
SURVEY
RSIC-381 N65-26989
- ANNOTATED BIBLIOGRAPHY ON COMPOUND SEMICONDUCTORS
ATD-65-99 N66-16945
- SNOW**
AERIAL OBSERVATIONS OF RAIN AND SNOW CLOUDS -
SELECTED BIBLIOGRAPHY ON INSTRUMENTS AND
OBSERVING TECHNIQUES USED IN CLOUD PHYSICS
N65-33094
- BIBLIOGRAPHY ON SNOW, ICE, AND PERMAFROST - LIVING
IN POLAR REGIONS AND COLD WEATHER AREAS
CRREL-12 N66-12524
- SOCIAL ISOLATION**
BIBLIOGRAPHY ON SENSORY DEPRIVATION, SENSORY
ISOLATION AND INVARIANCE, STIMULUS DEPRIVATION,
PATTERNED STIMULATION, CONFINEMENT, SOCIAL
ISOLATION, MONOTONY, AND BRAINWASHING
N66-15552
- SODIUM COMPOUND**
BIBLIOGRAPHY ON PROPERTIES OF NITRATES, CHLORATES,
AND BROMATES OF SODIUM, POTASSIUM, AND RUBIDIUM
PA-TR-3161 N65-19482
- SODIUM NITRATE**
BIBLIOGRAPHY ON PROPERTIES OF NITRATES, CHLORATES,
AND BROMATES OF SODIUM, POTASSIUM, AND RUBIDIUM
PA-TR-3161 N65-19482
- SOLAR RADIATION**
ANNOTATED BIBLIOGRAPHY ON UPPER ATMOSPHERE - SOLAR
RADIATION, IONOSPHERIC ELECTRON CONCENTRATION,
VAN ALLEN RADIATION BELTS, GEOELECTRICITY,
NUCLEAR BURSTS, COMMUNICATIONS, AND METEOROLOGY
AID-P-64-34 N65-15714
- SOLAR SYSTEM**
CUMULATIVE AUTHOR-INSTITUTION INDEX FOR VOLUME 3
OF ICARUS, INTERNATIONAL JOURNAL OF SOLAR
SYSTEM A65-17773
- BIBLIOGRAPHY CONTAINING 275 ENTRIES ON
ASTRONOMICAL SUBJECTS FROM ELEVEN U.S., BRITISH
AND SOVIET TECHNICAL PUBLICATIONS PUBLISHED IN
1964 A65-29113
- BIBLIOGRAPHY OF 1964 LITERATURE ON SOLAR SYSTEM
SCIENCE A65-35373
- BIBLIOGRAPHY OF CURRENT ASPECTS OF EXOBIOLGY
DEALING WITH SOLAR SYSTEM, LIFE DETECTION SYSTEM,
ORIGIN OF LIFE AND LIFE IN UNIVERSE
A66-11612
- SOLAR WIND**
BIBLIOGRAPHY ON SOLAR WIND EFFECT, RADIATION AND
ARTIFICIAL RADIATION BELTS, AURORA, SOLAR ENERGY
PARTICLES, GALACTIC COSMIC RAYS, GEOMAGNETISM,
AND NEUTRONS
NASA-TM-X-55192 N65-21659
- SOLID LUBRICANT**
ANNOTATED BIBLIOGRAPHY ON SOLID LUBRICANTS - WITH
INDEXES
NASA-SP-5037 N66-17358
- SOLID PROPELLANT**
ANNOTATED BIBLIOGRAPHY ON SOLID ROCKET
STRUCTURAL INTEGRITY AND SUMMARY REVIEW ON
DEVELOPMENTS IN LINEAR VISCOELASTIC STRESS
ANALYSIS
AD-464736 N65-34839
- ABSTRACTS ON LIQUID AND SOLID PROPELLANTS, HIGH
ENERGY FUELS, ADVANCED ENERGY SOURCES, AND
COMBUSTION FROM SOVIET LITERATURE - ANNOTATED
BIBLIOGRAPHY
ATD-66-2 N66-19672
- SOLID STATE**
BIBLIOGRAPHY ON HIGH TEMPERATURE PHYSICS AND
CHEMISTRY OF REFRACTORY MATERIALS IN LIQUID AND
SOLID STATE N66-15417
- SOLID STATE DEVICE**
PROBLEMS IN CONSTRUCTING SOLID STATE NEURISTORS
FOR LOGIC SYSTEMS - ANNOTATED BIBLIOGRAPHY
AD-610095 N65-20308
- SOLID STATE DEVICES, LASERS, AND MATERIALS SCIENCE
ABSTRACTS - ANNOTATED BIBLIOGRAPHY
ESD-TDR-65-318 N66-16745
- SOLID STATE PHYSICS**
ANNOTATED BIBLIOGRAPHY ON SURFACE PHYSICS,
STRENGTH PROPERTIES OF SOLIDS, SOLID STATE
PHYSICS, AND DECOMPOSITION IN SOLID STATE
N65-24651
- SOLID STATE PHYSICS, POLYMER CHEMISTRY, ORGANIC
AND ORGANOMETALLIC COMPOUNDS, SEMICONDUCTORS,

- INTERMETALLICS, PLASTICS, AND NUCLEAR MAGNETIC
RESONANCE - ANNOTATED BIBLIOGRAPHY
N66-15498
- SOLID STATE PHYSICS, ELECTRONICS, METALLURGY,
OPTICS, AND MATERIALS SCIENCE - ANNOTATED
BIBLIOGRAPHY
AD-623906 N66-15802
- SOLIDS
ANNOTATED BIBLIOGRAPHY ON SURFACE PHYSICS,
STRENGTH PROPERTIES OF SOLIDS, SOLID STATE
PHYSICS, AND DECOMPOSITION IN SOLID STATE
N65-24651
- SONAR
BIBLIOGRAPHY RELATED TO MILITARY IMPLICATIONS
STUDY OF INTERNAL OCEAN WAVES
REPT.-4030965 N66-20643
- SONIC BOOM
ANNOTATED BIBLIOGRAPHY OF SONIC BOOM THEORY AND
PRESSURE EFFECT ON STRUCTURES AND HUMANS -
MEASUREMENTS FROM AIRCRAFT AND WIND TUNNELS
RAE-LIB-BIBL-255 N65-24967
- SOUND
FLUID MOTION AND SOUND BIBLIOGRAPHY WITH ABSTRACTS
REPT.-65-49 N66-19774
- SOUND TRANSMISSION
SPEECH PRODUCTION, TRANSMISSION, AND ANALYSIS -
INSTRUMENTATION, NASAL CAVITY STRUCTURES,
ACOUSTICS, SPEECH SPECTRUM, DEAFNESS AIDS, AND
BIBLIOGRAPHY ON SPEECH RECODING FOR DEAFNESS
STL-QPSR-4/1964 N65-23850
- SPACE COMMUNICATION
ANNOTATED BIBLIOGRAPHY ON MODULATION AND CHANNELS
WITH REGARD TO SPACE APPLICATIONS - DIGITAL,
SAMPLING, WIDEBAND, MULTIPLEX, AND PULSE CODE
MODULATION
NASA-SP-7022/01/, VOL. 1 N65-27821
- ABSTRACT LISTING AND BIBLIOGRAPHY ON SPACE
COMMUNICATIONS THEORY AND APPLICATIONS
NASA-SP-7022/02/ N65-29846
- ANNOTATED BIBLIOGRAPHY ON INFORMATION PROCESSING
AND ADVANCED COMMUNICATION TECHNIQUES - THEORY
AND APPLICATIONS OF SPACE COMMUNICATIONS
NASA-SP-7022/03/ N65-31136
- SPACE ENVIRONMENT
BIBLIOGRAPHY OF DOCUMENTS ON LUNAR, PLANETARY,
AND SPACE ENVIRONMENTS IN RELATION TO FLIGHT
MECHANICS AND AERODYNAMICS OF SPACE TRAVEL
NASA-CR-60469 N65-16086
- LUNAR, PLANETARY, AND SPACE ENVIRONMENT PARAMETERS
AFFECTING SPACE VEHICLE DESIGN AND FLIGHT
MECHANICS - ANNOTATED BIBLIOGRAPHY
NASA-CR-61037 N65-17610
- LUNAR SURFACE STUDIES - SCIENTIFIC BIBLIOGRAPHY
NASA-SP-7003/01/ N65-19900
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BIOLOGY WITH SUBJECT, AUTHOR, AND CORPORATE
SOURCE INDEXES - PHYSIOLOGICAL, PSYCHOLOGICAL,
AND SPACE ENVIRONMENT EFFECTS ON MAN
NASA-SP-7011/18/ N66-14160
- SPACE ENVIRONMENT VACUUM AND RADIATION EFFECTS
ON MICROELECTRONICS AND MATERIALS - ANNOTATED
BIBLIOGRAPHY
TS-1559/3111 N66-17299
- SPACE FLIGHT
BIBLIOGRAPHY ON SPACE RESEARCH - ECONOMIC AND
POLITICAL IMPLICATIONS OF SPACE, INTERPLANETARY
FLIGHT, LUNAR FLIGHT, SATELLITES, SPACE SCIENCE,
SPACE APPLICATIONS, AND SPACE TECHNOLOGY
RM-4508 N65-25929
- SPACE MECHANICS
BIBLIOGRAPHY AND ABSTRACTS ON ORBIT DETERMINATION,
PROGRAMS AND SATELLITE SYSTEMS, TRACKING
STATIONS, SPACE DYNAMICS, PARAMETER OF ORBITS,
AND MATHEMATICS OF ORBITS
RSIC-415 N65-33499
- SPACE MISSION
NUCLEAR POWER APPLICATIONS FOR SPACE MISSIONS -
BIBLIOGRAPHY
STL-9990-6998-KU-000 N65-34447
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ANNOTATED BIBLIOGRAPHY ON TECHNOLOGICAL
INNOVATIONS IN NASA SPACE PROGRAMS
NASA-SP-5021/01/ N65-31135
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NASA-CR-64613 N65-33147
- A GARD INFORMATION BULLETIN - TECHNICAL PROGRAM,
PANEL MEMBERSHIP CHANGES, CALENDAR OF EVENTS,
AND ANNOTATED BIBLIOGRAPHY OF AGARC
REPT.-65-2 N65-35561
- SPACE RADIATION
ANNOTATED BIBLIOGRAPHY ON CHARGED PARTICLE MOTION
IN MAGNETIC FIELDS AND ON SPACE RADIATION
MAGNETIC SHIELDING
NASA-CR-68657 N66-13563
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BIBLIOGRAPHY OF 1964 LITERATURE ON SOLAR SYSTEM
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SATELLITES AND PROBES N65-18021
- SPACE SCIENCE PROGRAM OF USA - THEORETICAL
ASPECTS, SUMMARY OF LAUNCHINGS FOR 1964, LIST OF
RESEARCH PROJECTS AND AGENCIES, AND BIBLIOGRAPHY
N65-29509
- SPACE SCIENCE BIBLIOGRAPHY FOR 1964
N65-29511
- ABSTRACTS ON SPACE RELATED SCIENCES, PHYSICAL LIFE
AND ENGINEERING SCIENCES - RADIOACTIVITY -
DISPERSION HARDENING OF ALLOYS - ULTRASONIC
TREATMENT - PHYSIOLOGY - PSYCHOLOGY
NASA-CR-67721 N66-10886
- SOVIET ABSTRACTS ON PROBLEMS OF SPACE BIOLOGY
N66-16933
- SPACE VEHICLE
BIBLIOGRAPHY OF PLASMA PHYSICS - ATMOSPHERIC
REENTRY OF SPACE VEHICLES, ELECTROMAGNETIC WAVE
PROPAGATION, ANTENNA BREAKDOWN, GROUND-BASED
REENTRY TEST FACILITIES, AND PLASMA DIAGNOSTICS
CAL-ER/RIS-3 N65-24842
- ABSTRACTS ON TRACKING OF MISSILES AND SPACE
VEHICLES FROM SOVIET OPEN LITERATURE - ION
CLOUDS AND IONOSPHERE PERTURBATIONS, REFLECTION
OF ELECTROMAGNETIC WAVES, AND RADIO ASTRONOMY
ATD-P-65-40 N65-31097
- SPACECRAFT ENVIRONMENT
ABSTRACT COMPILATION ON SPACECRAFT INTERACTIONS
WITH IONOSPHERE, MAGNETOSPHERE, AND
INTERPLANETARY PLASMA
NASA-CR-70362 N66-17066
- SPACECRAFT MOTION
INTERACTIONS OF SPACECRAFT AND OTHER MOVING
BODIES WITH NATURAL PLASMAS - BIBLIOGRAPHY
NASA-CR-71204 N66-15640
- SPACECRAFT REENTRY
SPACE VEHICLE REENTRY - ANNOTATED BIBLIOGRAPHY
SSD-TDR-63-389 N65-16441
- SPACECRAFT TRACKING
ABSTRACTS OF SOVIET PAPERS ON MISSILE AND SPACE
VEHICLE TRACKING
ATD-P-65-51 N65-34194
- SPECTRAL ANALYSIS
ABSTRACTS ON METEOROLOGY - ATMOSPHERICS, DYNAMICS,
INSTABILITIES, SPECTRAL ANALYSIS, HEAT BALANCE,
ICE FORMATION, IONIZATION, WINDS, RADIATION, AND
CIRCULATION

- E-TC-CH-64-25 N65-29841
 ANNOTATED BIBLIOGRAPHY ON CHEMISTRY OF COMETS -
 FREE RADICALS, PHOTOCHEMISTRY, PHOTOLYSIS, AND
 SPECTRAL ANALYSIS
 NASA-CR-68407 N66-13081
- SPECTRAL LINE**
 BIBLIOGRAPHY ON RESEARCH OF F-VALUES - OSCILLATOR
 STRENGTHS OF SPECTRAL LINES
 ATD-65-86 N66-15123
- SPECTROSCOPY**
 BIBLIOGRAPHY ON HIGH TEMPERATURE CHEMISTRY AND
 PHYSICS OF GASES, GAS-CONDENSED PHASE REACTIONS,
 AND HIGH TEMPERATURE CHEMISTRY SPECTROSCOPY
 N65-23772
 BIBLIOGRAPHY ON SPECTROSCOPY RELATED TO HIGH
 TEMPERATURE CHEMISTRY, REACTIONS BETWEEN GASES
 AND CONDENSED PHASES, AND PLASMA THERMODYNAMICS
 REPT.-17 N66-19086
- SPEECH**
 SPEECH PRODUCTION, TRANSMISSION, AND ANALYSIS -
 INSTRUMENTATION, NASAL CAVITY STRUCTURES,
 ACOUSTICS, SPEECH SPECTRUM, DEAFNESS AIDS, AND
 BIBLIOGRAPHY ON SPEECH RECODING FOR DEAFNESS
 STL-QPSR-4/1964 N65-23850
- SPHERICAL SHELL**
 BIBLIOGRAPHY ON STRUCTURAL STABILITY OF CONICAL
 AND SPHERICAL THIN SHELLS N65-18347
- SQUID PROJECT**
 SQUID PROJECT BIBLIOGRAPHY ON JET PROPULSION
 UVA-6-R N65-17124
- STABILITY**
 PLASMA PHYSICS BIBLIOGRAPHY WITH ABSTRACTS ON
 STABILITY AND OSCILLATIONS, SHOCK WAVES,
 ELECTROMAGNETIC FIELDS, AND OTHER AREAS
 ATD-P-65-82 N66-16758
- STARK EFFECT**
 MICROWAVE SPECTROSCOPY, VIBRATIONAL SPECTROSCOPY,
 MOLECULAR STRUCTURE, QUADRUPOLE COUPLING, STARK
 EFFECT, AND ZEEMAN EFFECT - BIBLIOGRAPHY
 RD-TM-65-14 N66-18653
- STEADY STATE**
 CALCULATIONS OF STEADY STATE EQUATIONS FOR
 COLLISIONAL RADIATIVE DECAY - BIBLIOGRAPHY
 N65-27489
- STEAM TURBINE**
 CENTRIFUGAL PUMP AND COMPRESSOR IMPELLERS, GAS AND
 STEAM TURBINE ROTORS, AND ROTATING DISKS -
 ANNOTATED BIBLIOGRAPHY
 BIB-17 N65-36379
- STEEL**
 METALLURGY OF IRON, STEEL, AND ALLYS OF
 TRANSITION METALS - ANNOTATED BIBLIOGRAPHY
 JPRS-28358 N65-16501
- STORAGE**
 ANNOTATED BIBLIOGRAPHY ON TRANSPORTATION AND
 STORAGE N65-21200
 ABSTRACTS ON TRANSPORTATION OF GOODS, WAREHOUSE
 STORAGE, LOADING AND UNLOADING METHODS, PACKING,
 AND SAFETY N66-15837
- STRAIN FATIGUE**
 BIBLIOGRAPHY ON THEORY AND TESTS FOR LOW CYCLE
 STRAIN FATIGUE OF FUEL CLADDING MATERIALS
 PUBL.-147 N65-24714
- STRATOSPHERE**
 METEOROLOGY, HYDROLOGY, WEATHER FORECASTING, AND
 HYDROMETEOROLOGY - STRATOSPHERICAL CYCLONES AND
 ANTICYCLONES, WEATHER NAVIGATION AID FOR SHIPS,
 PRECIPITATION, AND BIBLIOGRAPHY
 JPRS-29461 N65-23439
 ABSTRACTED REPORTS FROM CONFERENCE ON STRATOSPHERE
 AND MESOSPHERE METEOROLOGY N66-17738
- STREAM**
 BIBLIOGRAPHY ON MIXING OF SUPERSONIC AND SUBSONIC
 STREAMS AND PRACTICAL EJECTORS DESIGN AND
 PERFORMANCE N66-11633
- STRESS-STRAIN DISTRIBUTION**
 ANNOTATED BIBLIOGRAPHY ON SOLID ROCKET
 STRUCTURAL INTEGRITY AND SUMMARY REVIEW ON
 DEVELOPMENTS IN LINEAR VISCOELASTIC STRESS
 ANALYSIS
 AD-464736 N65-34839
- STRUCTURAL DESIGN**
 BIBLIOGRAPHY ON DESIGN, AND MANUFACTURE OF
 METALLIC DIAPHRAGMS
 LS-BIB-65-1 N65-36500
- STRUCTURAL DYNAMICS**
 ANNOTATED BIBLIOGRAPHY AND ABSTRACTS ON DIESEL
 ENGINES, DIFFUSION WELDING, ULTRASONICS, STEAM
 PLANTS, GAS DYNAMICS, LUBRICANTS, METALLURGY,
 THERMODYNAMICS, AND STRUCTURAL DYNAMICS
 N66-16444
- STRUCTURAL ENGINEERING**
 ANNOTATED BIBLIOGRAPHY ON BUILDING AND
 CONSTRUCTION MECHANICS AND MATERIAL, GROUND,
 WATER, AND PROTECTIVE STRUCTURES, AND STRUCTURAL
 ENGINEERING N65-21185
- STRUCTURAL STABILITY**
 BIBLIOGRAPHY ON STRUCTURAL STABILITY OF CONICAL
 AND SPHERICAL THIN SHELLS N65-18347
 ANNOTATED BIBLIOGRAPHY ON SOLID ROCKET
 STRUCTURAL INTEGRITY AND SUMMARY REVIEW ON
 DEVELOPMENTS IN LINEAR VISCOELASTIC STRESS
 ANALYSIS
 AD-464736 N65-34839
- SUBMERISION**
 ANNOTATED BIBLIOGRAPHY ON DEEP SUBMERGENCE STUDIES
 LMSC-6-62-65-2 N65-30943
- SUBSONIC FLOW**
 BIBLIOGRAPHY ON MIXING OF SUPERSONIC AND SUBSONIC
 STREAMS AND PRACTICAL EJECTORS DESIGN AND
 PERFORMANCE N66-11633
- SULFUR OXIDE**
 ANNOTATED BIBLIOGRAPHY ON SULFUR OXIDES AND OTHER
 SULFUR COMPOUNDS WITH RELATION TO AIR POLLUTION
 N65-23857
- SUPERSONIC COMBUSTION**
 SUPERSONIC COMBUSTION BEHIND SHOCK AND DETONATION
 WAVES - ABSTRACTS ON SUPERSONIC COMBUSTION
 KINETICS
 ATD-P-65-100 N66-15000
 ABSTRACTS OF PAPERS ON LIQUID PROPELLANT ROCKETS
 AND AIR BREATHING COMBUSTION
 AFOSR-64-0258 N66-16477
- SUPERSONIC FLIGHT**
 X-15 AIRCRAFT DEVELOPMENT CONCEPT, FLIGHT
 RESEARCH, AERODYNAMIC CHARACTERISTICS OF
 SUPERSONIC-HYPERSONIC FLIGHT, HYPERSONIC
 STRUCTURE, FLYING LABORATORY, AND BIBLIOGRAPHY
 NASA-SP-60 N65-20162
- SUPERSONIC FLOW**
 AEROSONICS BIBLIOGRAPHY - FLUID DYNAMICS OF
 SUPERSONIC JET FLOWS
 REPT.-65-3 N65-28720
 BIBLIOGRAPHY ON MIXING OF SUPERSONIC AND SUBSONIC
 STREAMS AND PRACTICAL EJECTORS DESIGN AND
 PERFORMANCE N66-11633
- SURFACE PROPERTY**
 ANNOTATED BIBLIOGRAPHY ON SURFACE PHYSICS,
 STRENGTH PROPERTIES OF SOLIDS, SOLID STATE
 PHYSICS, AND DECOMPOSITION IN SOLID STATE
 N65-24651
- SURFACE TEMPERATURE**
 BIBLIOGRAPHY ON INTERFACE CONTACT RESISTANCE AND
 SURFACE HEAT FLUX AND TEMPERATURE MEASUREMENTS

UCRL-14264 N66-20385

SURFACE WAVE
SURFACE WAVE EXCITATION AND RADIATION PATTERNS
FROM EARTHQUAKES AND UNDERGROUND NUCLEAR
EXPLOSIONS - ELASTIC WAVE PROPAGATION STUDY -
ABSTRACTS
AROD-4120-2 N66-15326

SURVEYOR PROJECT
J PL PUBLICATIONS BIBLIOGRAPHY WITH ABSTRACTS -
REPORTS ON DSIF, MARINER PROGRAM, RANGER
PROJECT, SURVEYOR PROJECT, AND OTHER SPACE
PROGRAMS, AND SPACE SCIENCES
NASA-CR-69354 N66-15386

SUSPENSION SYSTEM
ANNOTATED BIBLIOGRAPHY ON AUTOMOTIVE TECHNOLOGY,
AMPHIBIOUS VEHICLES, TRUCKS, AND STUDIES ON
BRAKING, IGNITION, ENGINE, SUSPENSION, AND
ELECTRICAL SYSTEMS N66-15780

SYNCHROTRON
LINEAR ACCELERATOR, PARTICLE PHYSICS, SYNCHROTRON,
LOW TEMPERATURE PHYSICS, MAGNETISM, AND
ELECTRONICS RESEARCH ACTIVITIES AND BIBLIOGRAPHY
LNF-65/41 N66-19723

SYSTEMS ANALYSIS
EFFECTS OF HUMAN PERFORMANCE ON PRODUCT AND
SYSTEMS EFFECTIVENESS - BIBLIOGRAPHY
RH-3398-J N65-20726

SURVEY OF COMPUTER PROGRAMMING METHODS ADAPTABLE
TO SYSTEM ANALYSIS FOR RELIABILITY, SYSTEM
EFFECTIVENESS, MAINTAINABILITY, SIMULATION, AND
CIRCUIT AND FAILURE MODE ANALYSIS - BIBLIOGRAPHY
OEM-1 N66-13752

SYSTEMS ENGINEERING
BIBLIOGRAPHY ON SYSTEMS ENGINEERING, PHYSICAL
ANTHROPOLOGY, HUMAN ENGINEERING, INSTRUMENTATION
AND SIMULATION, AND TRAINING AND LEARNING
AD-464531 N65-35343

T

TABLE
SURVEY IN FORM OF TABLES AND GRAPHS OF SURFACE
BRIGHTNESS AND DEGREE OF POLARIZATION OF
ZODIACAL LIGHT AS FUNCTION OF ELONGATION IN
PLANE OF ELLIPTIC - RELATED BIBLIOGRAPHY
NASA-CR-58323 N66-15052

TELECOMMUNICATION
LITERATURE SURVEY OF RESEARCH DEALING WITH
TELECOMMUNICATIONS, ELECTRONICS, INFORMATION
PROCESSING, COMPUTER DESIGN, AND RELATED
SUBJECTS - ANNOTATED BIBLIOGRAPHY
N66-15748

ABSTRACTS AND BIBLIOGRAPHY ON TELECOMMUNICATIONS,
RADAR, ELECTROMAGNETIC RADIATION, INFORMATION
PROCESSING, COMPUTERS, MICROELECTRONICS, AND
OSCILLATORS AND MAGNIFIERS N66-19939

ABSTRACTS AND BIBLIOGRAPHIC NOTES INFORMATION
PROCESSING, TELECOMMUNICATIONS, ELECTRONICS,
QUALITY CONTROL AND RELIABILITY OF ELECTRONIC
PARTS, INTEGRATED CIRCUITS, AND MICROELECTRONICS
N66-20740

TELEMETRY
CONFERENCE ON SATELLITE TRACKING, TELEMETRY, AND
DYNAMICS, SPACE RESEARCH BIBLIOGRAPHY, SATELLITE
RADIO SIGNALS FOR STUDYING IONOSPHERE, AND
SATELLITE OBSERVATIONS N65-24650

TEMPERATURE MEASUREMENT
ANNOTATED BIBLIOGRAPHY ON FALLING SPHERE METHOD
FOR MEASURING UPPER ATMOSPHERE DENSITY, WIND,
AND TEMPERATURE N65-33107

TEST EQUIPMENT
BIBLIOGRAPHY OF NONDESTRUCTIVE TESTING THEORY
AND APPLICATION FOR COMPOSITE MATERIAL
NASA-CR-68604 N66-13338

TEST FACILITY
BIBLIOGRAPHY OF PLASMA PHYSICS - ATMOSPHERIC
REENTRY OF SPACE VEHICLES, ELECTROMAGNETIC WAVE
PROPAGATION, ANTENNA BREAKDOWN, GROUND-BASED
REENTRY TEST FACILITIES, AND PLASMA DIAGNOSTICS
CAL-ER/RIS-3 N65-24842

ANNOTATED BIBLIOGRAPHY ON DESIGN, EQUIPMENT, AND
OPERATION OF LABORATORIES FOR WORK WITH
RADIOACTIVE MATERIALS
TID-3545, REV. 1 N66-12484

TETRAPYRROLE
LITERATURE SURVEY AND ANNOTATED BIBLIOGRAPHY ON
CHLOROPHYLL MODIFICATIONS, TRIPLET STATES OF
TETRAPYRROL PIGMENTS, OXYGEN EVOLUTION IN
PHOTOSYNTHESIS, AND STRUCTURE OF TETRAPYRROL
ATD-65-107 N66-14651

THEORETICAL PHYSICS
ABSTRACTS OF PHYSICS RESEARCH ACTIVITIES AND
STYLES AND METHODS FOR PRESENTATION OF PHYSICS
MATERIALS
AD-613057 N65-26074

THERMAL CONDUCTOR
BIBLIOGRAPHY OF CONTACT HEAT TRANSFER MEASUREMENTS
AND THEORIES, AND THERMAL METALLIC CONTACT
CONDUCTANCE
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THERMAL DEGRADATION
PYROLYSIS OF POLYMERS AND CARBOHYDRATES -
BIBLIOGRAPHY
MLN-1271 N65-36214

THERMOCHEMISTRY
ANNOTATED BIBLIOGRAPHY ON LIQUID METALS, PHYSICAL
PROPERTIES OF ALLOYS, X-RAY DIFFRACTION STUDIES,
THEROCHEMISTRY, AND THERMODYNAMICS
ATD-B-65-95 N66-19399

THERMOCONDUCTIVITY
THERMOCONDUCTIVITY OF TEN CRYOGENIC FLUIDS -
BIBLIOGRAPHY
NASA-CR-50292 N65-17283

THERMODYNAMICS
SURVEY OF LITERATURE ON THERMODYNAMICS FROM
BIBLIOGRAPHIES IN JOURNALS ON HEAT AND MASS
TRANSFER AND ASME SYMPOSIA
A66-10178

BIBLIOGRAPHY ON SPECTROSCOPY RELATED TO HIGH
TEMPERATURE CHEMISTRY, REACTIONS BETWEEN GASES
AND CONDENSED PHASES, AND PLASMA THERMODYNAMICS
REPT.-17 N66-19086

ANNOTATED BIBLIOGRAPHY ON LIQUID METALS, PHYSICAL
PROPERTIES OF ALLOYS, X-RAY DIFFRACTION STUDIES,
THEROCHEMISTRY, AND THERMODYNAMICS
ATD-B-65-95 N66-19399

THERMOLUMINESCENCE
THERMOLUMINESCENCE BIBLIOGRAPHY
TID-3911, REV. 2 N65-17417

THERMONUCLEAR REACTION
BIBLIOGRAPHY ON PLASMA PHYSICS FROM 1955-61
INCLUDING PLASMA KINETICS, GAS DISCHARGES, ION
ENGINES, SHOCK WAVES, ETC, COVERING ALSO SYMPOSIA
AND BOOKS
A65-32842

ANNOTATED BIBLIOGRAPHY ON CONTROLLED THERMONUCLEAR
REACTIONS - HOT AND COLD PLASMA, CROSS SECTIONS,
VACUUM AND WALL STUDIES, DIAGNOSTIC TECHNIQUES,
AND CRYOGENICS
TID-4005/PT. 5/ N65-21621

THERMOPHYSICAL PROPERTY
BIBLIOGRAPHY ON THERMOPHYSICAL PROPERTIES OF
FLUORINE FROM 0 TO 300 DEG K
NASA-CR-50285 N65-17316

THERMOPHYSICS
ANNOTATED BIBLIOGRAPHY ON LUNAR THERMOPHYSICS AND
RELATED INFORMATION
RSIC-419 N65-33675

THERMORECEPTOR

BIBLIOGRAPHY ON BIOSENSORS - MECHANORECEPTORS,
PHOTORECEPTORS, CHEMORECEPTORS, THERMORECEPTORS,
AND ELECTRIC AND MAGNETIC FIELD SENSORS
NASA-CR-63145 N65-25270

THICKENER

ALUMINUM SALTS OF SUBSTITUTED BENZOIC ACIDS FOR
USE AS HIGH TEMPERATURE GREASE THICKENERS -
BIBLIOGRAPHY WITH ABSTRACTS
AFML-TR-64-324 N65-31634

TIN TELLURIDE

BIBLIOGRAPHY ON BISMUTH TELLURIDES, LEAD
TELLURIDES, AND TIN TELLURIDES
TID-3583 N65-29058

TIROS SATELLITE

LITERATURE SURVEY OF SELECTED ARTICLES DEALING
WITH TIROS AND NIMBUS SATELLITE OBSERVATIONS -
ANNOTATED BIBLIOGRAPHY
TDCR-42600 N66-15514

ABSTRACTS AND ANNOTATED BIBLIOGRAPHY OF RADIO
ASTRONOMY, METEOROLOGY, SATELLITES, WEATHER
FORECASTING, AIR CONTAMINATION, STORM DETECTION,
LIGHTNING, AND HURRICANE SEEDING
N66-16443

TISSUE

BIBLIOGRAPHY ON RADIATION EFFECTS ON LIVING
TISSUES AND ORGANISMS
AED-C-04-16 N65-22844

BIBLIOGRAPHY ON RADIATION EFFECTS ON LIVING TISSUE
AND ORGANISMS
AED-C-04-18 N66-20512

TRACER

BIBLIOGRAPHY RADIOACTIVE TRACER DIFFUSION IN
METALS - IMPURITY DIFFUSION
ORNL-3795, PT. II N66-13244

TRACKING

ABSTRACTS ON TRACKING OF MISSILES AND SPACE
VEHICLES FROM SOVIET OPEN LITERATURE - ION
CLOUDS AND IONOSPHERE PERTURBATIONS, REFLECTION
OF ELECTROMAGNETIC WAVES, AND RADIO ASTRONOMY
ATD-P-65-40 N65-31097

EFFECTS OF SYSTEM NONLINEARITIES ON HUMAN OPERATOR
TRACKING PERFORMANCE - LITERATURE SURVEY AND
BIBLIOGRAPHY
AMRL-TR-65-158 N66-18582

TRACKING STATION

BIBLIOGRAPHY AND ABSTRACTS ON ORBIT DETERMINATION,
PROGRAMS AND SATELLITE SYSTEMS, TRACKING
STATIONS, SPACE DYNAMICS, PARAMETER OF ORBITS,
AND MATHEMATICS OF ORBITS
RSIC-415 N65-33499

TRAINING

ANNOTATED BIBLIOGRAPHY ON MANAGEMENT, COST
ESTIMATION, ECONOMICS, LOGISTICS, AND PERSONNEL
SELECTION AND TRAINING TECHNIQUES IN MILITARY,
INDUSTRIAL, AND RESEARCH FACILITIES
N66-15783

TRANSDUCER

ANNOTATED BIBLIOGRAPHY ON TRANSDUCER RESEARCH,
DEVELOPMENT, AND TESTING CONTRACTS
N65-31929

ANNOTATED BIBLIOGRAPHY ON APPLICATIONS OF
ELECTROMECHANICAL TRANSDUCERS - WITH INDEXES
NASA-SP-5036 N66-17359

FLUID AMPLIFICATION BIBLIOGRAPHY WITH ABSTRACTS -
LOGIC CIRCUITS, TRANSDUCERS, FLOW VISUALIZATION,
SENSORS, INSTRUMENTATION, AND TECHNOLOGY
TR-1304 N66-18565

TRANSISTOR CIRCUIT

ESAKI DIODE BIBLIOGRAPHY FROM JANUARY 1958 TO
NOVEMBER 1963, ESPECIALLY AMPLIFIERS AND LOGIC
CIRCUITS
A65-34873

TRANSIT SATELLITE

GEODETTIC AND TRANSIT SATELLITE NAVIGATION,
TRAJECTORY STABILITY AND CONTROL, TELEMETRY,
VISUAL OBSERVATION AND TRACKING EQUIPMENT -
BIBLIOGRAPHY AND ABSTRACTS
TDCR-43209 N66-19181

TRANSITION ELEMENT

ANNOTATED BIBLIOGRAPHY ON TRANSITION METALS OF
GROUPS IV, V, AND VI
ORNL-RMIC-3 /REV./ N65-22985

TRANSLATION

ANNOTATED BIBLIOGRAPHIES ON FOREIGN LIBRARY
TRANSLATIONS
RAE-LIB-BIBL-254 N65-21922

TRANSMISSION

BIBLIOGRAPHY OF PAPERS DEALING WITH REFLECTION AND
TRANSMISSION OF IR MATERIALS
A65-20825

TRANSPORTATION

ANNOTATED BIBLIOGRAPHY ON TRANSPORTATION AND
STORAGE
N65-21200

ABSTRACTS ON TRANSPORTATION OF GOODS, WAREHOUSE
STORAGE, LOADING AND UNLOADING METHODS, PACKING,
AND SAFETY
N66-15837

TRIPLET STATE

LITERATURE SURVEY AND ANNOTATED BIBLIOGRAPHY ON
CHLOROPHYLL MODIFICATIONS, TRIPLET STATES OF
TETRAPYRROL PIGMENTS, OXYGEN EVOLUTION IN
PHOTOSYNTHESIS, AND STRUCTURE OF TETRAPYRROL
ATD-65-107 N66-14651

TRITIUM

ANNOTATED BIBLIOGRAPHY ON CRYSTAL STRUCTURE
OF SOLID HYDROGEN, DEUTERIUM AND TRITIUM
RSIC-393 N65-26569

TRITON

BIBLIOGRAPHY OF REFERENCES TO DEUTERON AND TRITON
CROSS SCATTERING DATA
LA-3322-MS N65-29689

TROPOSPHERIC WAVE

BIBLIOGRAPHY AND ABSTRACTS ON TROPOSPHERIC
PROPAGATION OF RADIO WAVES
NBS-TN-304 N65-29059

TUMOR

EFFECT OF OLIGONUCLEOTIDES ON ACTIVITY OF TUMOR
DEOXYRIBONUCLEIC ACID POLYMERASE, MOSSBAUER
EFFECT IN RARE GASES AND INCLUSION COMPOUNDS, AND
SILVER HALIDES LUMINESCENCE AND PHOTOCONDUCTIVITY
ISS-65/29 N66-19804

TUNNEL DIODE

ESAKI DIODE BIBLIOGRAPHY FROM JANUARY 1958 TO
NOVEMBER 1963, ESPECIALLY AMPLIFIERS AND LOGIC
CIRCUITS
A65-34873

TURBULENCE

MIXING OF CONCENTRIC HIGH VELOCITY AIR STREAMS -
JET MIXING FLOW AERODYNAMIC CHARACTERISTICS -
ABSTRACTS
AID-U-64-24 N66-14181

TURBULENT BOUNDARY LAYER

HEAT TRANSFER RESEARCH, REVIEW OF CURRENT
PUBLISHED LITERATURE
A65-32418

ANNOTATED BIBLIOGRAPHY ON MICROMETEOROLOGY -
STAGNANT WEATHER CONDITIONS, BOUNDARY LAYER
TURBULENCE, AEROSOLS, AND AIR POLLUTION
ATD-P-65-18 N65-22778

U

U.S.S.R.

HEAT TRANSFER BIBLIOGRAPHY OF RUSSIAN WORKS
INCLUDING THERMODYNAMICS, CONVECTION, MASS
TRANSFER, PHASE CHANGE, COMBUSTION, ETC
A65-26384

ANNOTATED BIBLIOGRAPHY OF SOVIET AEROSPACE
INSTRUMENTATION RESEARCH
ATD-P-65-49 N65-29703

ANNOTATED BIBLIOGRAPHY AND LIST OF SOVIET
ARTICLES ON METHODS USED IN HIGH TEMPERATURE
MEASUREMENT OF GASES
ATD-P-65-53

N65-32226

ANNOTATED BIBLIOGRAPHY OF SOVIET SCIENTIFIC
AND TECHNICAL LITERATURE ON NUCLEAR SAFETY
ATD-B-65-76

N66-11853

U.S.S.R. 300-METER METEOROLOGICAL TOWER -
FACILITY, PERSONNEL, PROGRAM, AND ABSTRACTS OF
LOWER ATMOSPHERIC RESEARCH
AID-U-64-6

N66-13757

BIBLIOGRAPHY ON LIQUID STATE OF METALS STUDIES IN
U.S.S.R.
ATD-B-65-95

N66-16224

U.S.S.R. SPACE PROGRAM

BIBLIOGRAPHIC INDEX TO LITERATURE ON AEROSPACE
MEDICINE AND BIOASTRONAUTICS PUBLISHED IN
U.S.S.R., 1962-1964
NASA-TT-F-270

N65-22968

BIBLIOGRAPHY ON U.S.S.R. MANNED SPACE PROGRAM -
VOSKHOD, FUTURE PLANS, BIOASTRONAUTICS, LUNAR
AND MARS FLIGHTS, AND EXOBIOLGY
ATD-P-65-19

N65-25247

SOVIET ABSTRACTS ON PROBLEMS OF SPACE BIOLOGY

N66-16933

ULTRASONICS

ANNOTATED BIBLIOGRAPHY AND ABSTRACTS ON DIESEL
ENGINES, DIFFUSION WELDING, ULTRASONICS, STEAM
PLANTS, GAS DYNAMICS, LUBRICANTS, METALLURGY,
THERMODYNAMICS, AND STRUCTURAL DYNAMICS

N66-16444

UNDERGROUND NUCLEAR EXPLOSION

SURFACE WAVE EXCITATION AND RADIATION PATTERNS
FROM EARTHQUAKES AND UNDERGROUND NUCLEAR
EXPLOSIONS - ELASTIC WAVE PROPAGATION STUDY -
ABSTRACTS
AROD-4120-2

N66-15326

UPPER ATMOSPHERE

BIBLIOGRAPHY ON METEOROLOGICAL ROCKET AND
SATELLITE INVESTIGATIONS OF UPPER ATMOSPHERE AND
OUTER SPACE
JPRS-30925

N65-27664

ANNOTATED BIBLIOGRAPHY ON FALLING SPHERE METHOD
FOR MEASURING UPPER ATMOSPHERE DENSITY, WIND,
AND TEMPERATURE

N65-33107

PLANETARY UPPER ATMOSPHERES - PRIORITY RATINGS FOR
EXPERIMENTS, TYPES OF MEASUREMENTS FOR
RECOMMENDED PROGRAM, AND ANNOTATED BIBLIOGRAPHY

N66-14331

URANIUM

BIBLIOGRAPHY AND ABSTRACTS ON HYDRATED ACTINIDE
OXIDE SOLS AND URANIUM HYDROLYSIS REACTIONS
ORNL-TM-1052

N66-18285

V

VACUUM EFFECT

SPACE ENVIRONMENT VACUUM AND RADIATION EFFECTS
ON MICROELECTRONICS AND MATERIALS - ANNOTATED
BIBLIOGRAPHY
T5-1559/3111

N66-17299

VAN ALLEN BELT

ANNOTATED BIBLIOGRAPHY ON UPPER ATMOSPHERE - SOLAR
RADIATION, IONOSPHERIC ELECTRON CONCENTRATION,
VAN ALLEN RADIATION BELTS, GEOELECTRICITY,
NUCLEAR BURSTS, COMMUNICATIONS, AND METEOROLOGY
AID-P-64-34

N65-15714

VENTILATION

ABSTRACTS AND BIBLIOGRAPHY ON SHIP TYPES,
PROPULSION SYSTEMS, HYDRODYNAMIC DESIGN,
STRENGTH COMPUTATIONS, AND VENTILATION, AS WELL
AS DOCKS, NAVIGATION, AND RESCUE TECHNIQUES

N66-19934

VENUS

ANNOTATED BIBLIOGRAPHY OF SURFACE CHARACTERISTICS
OF MOON, MARS, AND VENUS
ATD-P-65-6

N65-22568

VERTEBRAL COLUMN

VERTEBRAL INJURIES SUSTAINED FROM AIRCRAFT
EJECTION - PROPOSED DESIGN TO DETERMINE DYNAMIC
STRENGTH OF ISOLATED VERTEBRA, AND ANNOTATED
BIBLIOGRAPHY ON EJECTION-RELATED INJURIES
TI-65-041

N65-28352

VIBRATION MEASUREMENT

SHIP HULL VIBRATION MEASUREMENTS, CCDE FOR
CLASSIFYING VIBRATION CHARACTERISTICS OF
DIFFERENT SHIPS, AND BIBLIOGRAPHY ON SHIP AND
SHIP MACHINERY VIBRATION
CTMB-1891

N65-22948

VIBRATIONAL SPECTRUM

MICROWAVE SPECTROSCOPY, VIBRATIONAL SPECTROSCOPY,
MOLECULAR STRUCTURE, QUADRUPOLE COUPLING, STARK
EFFECT, AND ZEEMAN EFFECT - BIBLIOGRAPHY
RD-TM-65-14

N66-18653

VISCOELASTICITY

ANNOTATED BIBLIOGRAPHY ON SOLID ROCKET
STRUCTURAL INTEGRITY AND SUMMARY REVIEW ON
DEVELOPMENTS IN LINEAR VISCOELASTIC STRESS
ANALYSIS
AD-464736

N65-34839

VISUAL FIELD

LITERATURE REVIEW OF HUMAN REACTIONS TO
STRUCTURELESS VISUAL FIELD EXPOSURE
TR-34

N66-16508

VOSKHOD MANNED SPACECRAFT

BIBLIOGRAPHY ON U.S.S.R. MANNED SPACE PROGRAM -
VOSKHOD, FUTURE PLANS, BIOASTRONAUTICS, LUNAR
AND MARS FLIGHTS, AND EXOBIOLGY
ATD-P-65-19

N65-25247

W

WARFARE

ABSTRACTS AND BIBLIOGRAPHY ON AIRPORT, ROAD, AND
BUILDING CONSTRUCTION, ON PHOTOGRAMMETRY, ON
CHEMICAL-BIOLOGICAL-RADIOLOGICAL WARFARE, AND ON
APPLICATION OF MOIRE METHOD

N66-19926

WATER

BIBLIOGRAPHY OF INFRARED REFLECTION, REFRACTION,
AND ABSORPTION PROPERTIES OF LIQUID WATER
NRL-BIBL-25

N66-13765

WATER PURIFICATION

ANNOTATED BIBLIOGRAPHY ON GROUNDWATER POLLUTION
AND WASTE WATER PURIFICATION
TDCR-42563

N66-16452

WAVE EXCITATION

SURFACE WAVE EXCITATION AND RADIATION PATTERNS
FROM EARTHQUAKES AND UNDERGROUND NUCLEAR
EXPLOSIONS - ELASTIC WAVE PROPAGATION STUDY -
ABSTRACTS
ARCC-4120-2

N66-15326

WAVE PROPAGATION

ATMOSPHERIC REFRACTION, CLIMATE, AND WEATHER
EFFECTS ON RADIO-RACAR WAVE PROPAGATION -
BIBLIOGRAPHY
TR-183, VOL. I

N65-20872

BIBLIOGRAPHY OF PLASMA PHYSICS - ATMOSPHERIC
REENTRY OF SPACE VEHICLES, ELECTROMAGNETIC WAVE
PROPAGATION, ANTENNA BREAKDOWN, GROUND-BASED
REENTRY TEST FACILITIES, AND PLASMA DIAGNOSTICS
CAL-ER/RIS-3

N65-24842

BIBLIOGRAPHY AND ABSTRACTS ON TROPOSPHERIC
PROPAGATION OF RADIO WAVES
NBS-TN-304

N65-29059

ANNOTATED BIBLIOGRAPHY ON IONOSPHERE AND
ELECTROMAGNETIC WAVE PROPAGATION, COSMIC
RADIATION AND RADIATION BELTS, TELLURIC CURRENT,
GEOMAGNETISM, WHISTLERS, AND AURORAS
ATD-65-81

N66-15109

WEAR

ANNOTATED BIBLIOGRAPHY OF ABSTRACTS ON
LUBRICATION, CORROSION, AND WEAR
NASA-SP-7020 N65-29845

WEATHER CONDITION

ANNOTATED BIBLIOGRAPHY ON MICROMETEOROLOGY -
STAGNANT WEATHER CONDITIONS, BOUNDARY LAYER
TURBULENCE, AEROSOLS, AND AIR POLLUTION
ATD-P-65-18 N65-22778

WEATHER FORECASTING

METEOROLOGY, HYDROLOGY, WEATHER FORECASTING, AND
HYDROMETEOROLOGY - STRATOSPHERICAL CYCLONES AND
ANTICYCLONES, WEATHER NAVIGATION AID FOR SHIPS,
PRECIPITATION, AND BIBLIOGRAPHY
JPRS-29481 N65-23439

WEIGHTLESSNESS

LIQUID ROCKET PROPELLANTS IN ZERO GRAVITY -
BIBLIOGRAPHY
LS-BIB-64-2 N65-15838

WELDING

WELDING METHODS BIBLIOGRAPHY WITH ABSTRACTS, AND
SUBJECT AND AUTHOR INDICES
NASA-SP-5024 N66-17277

WHALE

BIBLIOGRAPHY OF CETACEA LITERATURE
NAVWEP-8645 N65-22386

WIDEBAND COMMUNICATION

ANNOTATED BIBLIOGRAPHY ON MODULATION AND CHANNELS
WITH REGARD TO SPACE APPLICATIONS - DIGITAL,
SAMPLING, WIDEBAND, MULTIPLEX, AND PULSE CODE
MODULATION
NASA-SP-7022/01/, VOL. 1 N65-27821

WIND

ABSTRACTS ON METEOROLOGY - ATMOSPHERICS, DYNAMICS,
INSTABILITIES, SPECTRAL ANALYSIS, HEAT BALANCE,
ICE FORMATION, IONIZATION, WINDS, RADIATION, AND
CIRCULATION
E-TC-CH-64-25 N65-29841

WIND CIRCULATION

ANNOTATED BIBLIOGRAPHY ON LAND AND SEA BREEZE -
WIND CIRCULATION N65-31374

WIND MEASUREMENT

ANNOTATED BIBLIOGRAPHY ON FALLING SPHERE METHOD
FOR MEASURING UPPER ATMOSPHERE DENSITY, WIND,
AND TEMPERATURE N65-33107

WORK CAPACITY

WORK CAPACITY, PHYSICAL REACTIONS OF MAN, AND
NOISE NORMALIZATION IN LIFE SUPPORT SYSTEMS
DURING SPACE FLIGHTS, AND CHLORELLA CULTURES AS
LINK IN ECOSYSTEM - ABSTRACTS
NASA-TT-F-9536 N65-32876

X

X-RAY DIFFRACTION

LOW TEMPERATURE X-RAY DIFFRACTION - ANNOTATED
BIBLIOGRAPHY N65-23724

ANNOTATED BIBLIOGRAPHY ON HIGH TEMPERATURE X-RAY
DIFFRACTION TECHNIQUES - PHOTOGRAPHY AND
DIFFRACTOMETRY FOR CRYSTALLOGRAPHY N65-25304

ANNOTATED BIBLIOGRAPHY ON LIQUID METALS, PHYSICAL
PROPERTIES OF ALLOYS, X-RAY DIFFRACTION STUDIES,
THEROCHEMISTRY, AND THERMODYNAMICS
ATD-B-65-95 N66-19399

X-15 AIRCRAFT

X-15 AIRCRAFT DEVELOPMENT CONCEPT, FLIGHT
RESEARCH, AERODYNAMIC CHARACTERISTICS OF
SUPERSONIC-HYPERSOONIC FLIGHT, HYPERSOONIC
STRUCTURE, FLYING LABORATORY, AND BIBLIOGRAPHY
NASA-SP-60 N65-20162

Y

YTTRIUM-IRON GARNET /YIG/ CRYSTAL

CONTROLLED STEERING OF MICROWAVE ACOUSTIC BEAM IN

FERRITE USING YIG ROD, AND ABSTRACTS ON
MICROWAVE PROPERTIES OF FERRITES N66-19472
AFCRL-65-665

Z

ZEEMAN EFFECT

MICROWAVE SPECTROSCOPY, VIBRATIONAL SPECTROSCOPY,
MOLECULAR STRUCTURE, QUADRUPOLE COUPLING, STARK
EFFECT, AND ZEEMAN EFFECT - BIBLIOGRAPHY
RD-TM-65-14 N66-18653

ZIRCONIUM OXIDE

ZIRCONIUM OXIDE STRUCTURAL AND PHYSICAL
PROPERTIES - BIBLIOGRAPHY N65-18986
ARL-64-205

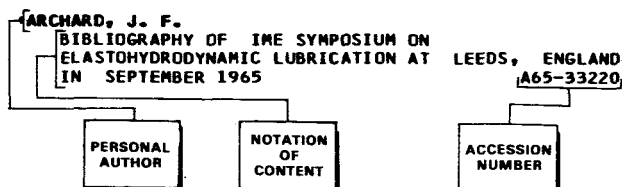
ZODIACAL LIGHT

SURVEY IN FORM OF TABLES AND GRAPHS OF SURFACE
BRIGHTNESS AND DEGREE OF POLARIZATION OF
ZODIACAL LIGHT AS FUNCTION OF ELONGATION IN
PLANE OF ELLIPTIC - RELATED BIBLIOGRAPHY N66-15052
NASA-CR-58323

Personal Author Index

BIBLIOGRAPHIES ON AEROSPACE SCIENCE / a continuing bibliography JUNE 1966
with indexes

Listing of Personal Authors of Reports



A Notation of Content (NOC), rather than the title of the document, is used to provide a more exact description of the subject matter. The accession number is included to assist the user in locating the abstract in the abstract section.

A

- AKULINICHEV, I. T.**
WORK CAPACITY, PHYSICAL REACTIONS OF MAN, AND
NOISE NORMALIZATION IN LIFE SUPPORT SYSTEMS
DURING SPACE FLIGHTS, AND CHLORELLA CULTURES AS
LINK IN ECOSYSTEM - ABSTRACTS
NASA-TT-F-9536 N65-32876
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ANNOTATED BIBLIOGRAPHY OF AVIATION MEDICINE
TRANSLATIONS
AM-65-17 N65-26955
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PERCEPTION BIBLIOGRAPHY SELECTED FROM
PSYCHOLOGICAL INDEX, NO. 14, 1907 A65-81644
- LIST OF REFERENCES ON PERCEPTION FROM
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- SELECTION OF 116 ITEMS ON PERCEPTION FROM
PSYCHOLOGICAL INDEX 1909 A65-82342
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- SELECTED LIST OF REFERENCES ON MOTOR SKILLS
A66-80140
- SELECTED BIBLIOGRAPHY ON PERCEPTION
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- SELECTED BIBLIOGRAPHY ON STUDIES IN PERCEPTION
A66-80512
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PERCEPTION BIBLIOGRAPHY SELECTED FROM
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- ANDC, K. J.**
MOSSBAUER EFFECT DATA INDEX - EXPERIMENTAL
DATA ON NUCLEAR TRANSITION, SOURCE MATERIAL,
AND ABSORBER MATERIAL - BIBLIOGRAPHY
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TID-3911, REV. 2 N65-17417
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ELASTOHYDRODYNAMIC LUBRICATION AT LEEDS, ENGLAND
IN SEPTEMBER 1965 A65-33220
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AND SEPARATIONS CHEMISTRY, ACTIVATION,
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REACTIONS A65-32497
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METALS - IMPURITY DIFFUSION
CRNL-3795, PT. II N66-13244
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AND THEORIES, AND THERMAL METALLIC CONTACT
CONDUCTANCE
NASA-TM-X-53227 N65-24564
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REPT.-8 N65-27866
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STRUCTURELESS VISUAL FIELD EXPOSURE
TR-34 N66-16508
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GLASSES - ANNOTATED BIBLIOGRAPHY
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AND PROCESS OPERATIONS - ANNOTATED BIBLIOGRAPHY
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WIND CIRCULATION N65-31374
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PROCESSES, PARTICLE INTERACTIONS, INTERACTIONS
OF ELECTRIC AND MAGNETIC FIELD, AND GAS

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ORNL-AMPIC-1 N65-30652 A66-15910
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